International Exhibition

# INVENTCOR

3rd edition

Editor: Corneliu BIRTOK BĂNEASĂ

CORNELIUGROUP Research-Innovation Association

INVENTCOR

Power of Creative Mind

## Catalog

SCAN ME

Deva, Romania

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# Catalog 3rd International Exhibition InventCor
# 15-17.12.2022 – Deva, Romania

## International Exhibition InventCor, 3rd edition

**CORNELIUGROUP research-innovation Association** in collaboration with **Romanian Association for Alternative Technologies Sibiu - A.R.T.A. Sibiu** organizes online, the **International Exhibition INVENTCOR, 3rd edition**

**Description:** Non-formal educational event for all ages. **INVENTCOR** presents inventions, research projects, products, educational programs, experimental teaching stands of universities, research institutes, multinational companies and private inventors.

The exhibition will also include the **KidsCorner**, **InnovativeART** as well as extensive presentations from various fields: innovation, ecology, health, people's safety, community, intellectual property, automotive and travel.

**Objective:** The main objective of the International Exhibition INVENTCOR is the importance of developing the creative – innovative spirit, through the involvement of young people.

**Site:** CORNELIUGROUP association http://corneliugroup.ro/inventcor.html

**FB event page:** INVENTCOR 2022 https://fb.me/e/1i6Z8zDTV

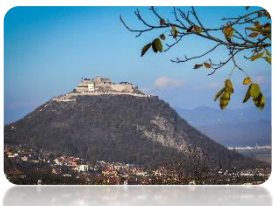
**Period & Location:** 15-17.12.2022 Online

**Motto:** **C**reation **O**pportunity **R**ealization

**Promo:** https://youtu.be/OLU406znO18

**Hashtag:** #InventCOR2022 #CorneliuGroup #PutereaMintiiCreative

**Origin: Deva City**



**INVENTCOR President:** Corneliu Birtok Baneasa
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https://www.linkedin.com/in/corneliu-birtok-baneasa-547765240

# Catalog 3rd International Exhibition InventCor

## 15-17.12.2022 – Deva, Romania

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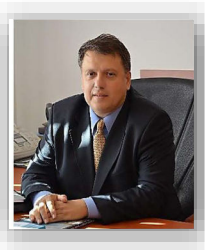
***Co-organizer:***

**Romanian Association for Alternative Technologies Sibiu - A.R.T.A. Sibiu**

http://artasibiu.ro
https://www.facebook.com/mihail.titu/
mihail.titu@yahoo.com



***Educational partner:***

**Polytechnic University Timișoara**
https://www.upt.ro/Universitatea-Politehnica-Timisoara_en.html

**Faculty of Engineering Hunedoara** http://www.fih.upt.ro/v4/#

***Research and innovation partners:***

**UPT Center for Innovation and Technology Transfer**
https://citt.upt.ro/en/

CITT POLITEHNICA 2020

**The General Association of the Engineers in Romania Hunedoara Branch** https://www.hunedoara.agir.ro/

**Romanian Inventors Forum**
http://www.afir.org.ro/

FIR EAST ROMANIA

**Toronto International Society of Innovation & Advanced Skills**
https://www.tisias.org/

TISIAS TORONTO INTERNATIONAL SOCIETY OF INNOVATION & ADVANCED SKILLS

**THE PATENT Invention Magazine**
https://www.thepatent.news/

THE PATENT Invention Magazine

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**The House of Science Deva**
https://www.facebook.com/Casa-Stiintei-112843810370259/?ref=page_internal

**Al Amaan Al Mutahida Company - Bagdad, Iraq**
www.alamaan-iq.com

**Indonesian Young Scientist Association (IYSA)**
https://iysa.or.id/

***Media partners:***


**Participating Countries:** Australia, Brazil, Canada, Cambodia, Egypt, Germany, Hungary, India, Indonesia, Iraq, Israel, Lebanon, Malaysia, Moldova, Romania, Saudi Arabia, Serbia, Thailand, Turkey, Vietnam and Zanzibar.

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JURY

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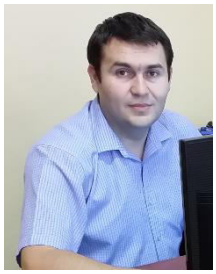

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# Catalog 3rd International Exhibition InventCor

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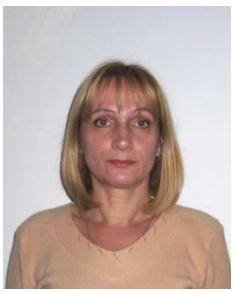

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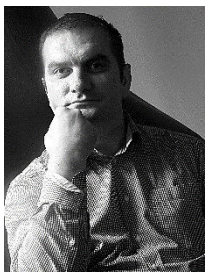

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# InventCor Awards

The following awards are presented at the **InventCor International Exhibition**


- **INVENTCOR GRAND AWARD**
- **JURY AWARD**
- **MEDICINE AWARD**
- **CORNELIUGROUP AWARD**
- **A.R.T.A. Sibiu AWARD**
- **EDUCATION AWARD**
- **A.G.I.R. AWARD**
- **MEDIA AWARD**
- **BUSINESS AWARD**
- **CREATIVE AWARD**
- **POPULARITY AWARD**
- **Special Awards of the participating institutions**

**Following the international judging, gold, silver and bronze medals will be awarded.**

# Organizing committee

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**Aurel Mihail ȚÎȚU - "Lucian Blaga" University of Sibiu**

**Ana Virginia SOCALICI - Politehnica University of Timisoara**

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**Eugen BIRTOK - Politehnica University of Timisoara**

**Cristian ABRUDEAN - Politehnica University of Timisoara**

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*Rector of Politechnica University of Timisoara*

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**Florin Nicolae OANCEA**

*Mayor of Deva*

**Dan BOBOUTANU**

*Mayor of Hunedoara*

Guests Speakers

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*Suez Canal University, Egypt*
*Associate Professor*
*& the Quality Assurance Officer, PhD Program,*
*King Abdulaziz University,*
*Jeddah , Saudi Arabia*

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*Foreign Policy researcher & Global advocate*
*Canada*

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*New era group of science and technology, New Delhi, India*

**Deni IRAWAN**

*President, Indonesian Young Scientist Association (IYSA)*

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*Universiti Malaysia Perlis (UniMAP)*
*Perlis, Malaysia*

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*Politehnica University of Bucharest*

# InventCor Categories

## A - Energy, Protection of the environment, Biotechnology

**1.**

***Title: EQUIPMENT AND PROCESS OF DECONTAMINATION BY WASHING OF HEAVY METAL POLLUTED SOILs***
***Patent/project number: Patent OSIM: RO133822 -B1/29.04.2021***
***Author/s: Gianina Elena Damian, Valer Micle***
***Institution: Technical University of Cluj-Napoca***
***Category: A***
***Description:*** *The process uses a suitable mixing and shredding equipment where the contaminated soil together with the washing solution containing potassium salts of humic acids and chitosan is introduced into the attrition chamber, inclined at 1° with respect to the horizontal plane. The stirring of the mixture in the attrition chamber is performed with 12 mixing blades arranged on a rotating shaft and inclined at 3° with respect to the rotating shaft. The rotating shaft is driven by an electric motor. This decontamination process and equipment for washing of heavy metal polluted soils ensures a high contact of the soil particles with the washing solution, which leads to high efficiency. By using this process and equipment the need for soil sorting on small particle size prior the decontamination is eliminated, and it is also an ecological process due to the nature of the washing agents used.*
***State of development: prototype***
***Contact:*** *Liliana.Pop@staff.utcluj.ro*
***Presentation link:***
*https://research.utcluj.ro/tl_files/research/Research%20Domain/Ingineria%20Materialelor/IngMed_DanViorel.pdf*

**2.**

***Title: AAM ADSORBENTS FOR COPPER AND NICKEL IONS REMOVAL***
***Patent/project number: P12020004793***
***Author/s: Masdiyana Ibrahim, Wan Mastura Wan Ibrahim, Mohd Mustafa Al Bakri Abdullah, Ahmad Syauqi Sauffi, Romisuhani Ahmad, Izzah Nadhirah Zalani, Izzah Atirah Harisliki, Raqibahtul Husna Azahar, Mohamad Arvin Mohd Ghani.***
***Institution: Universiti Malaysia Perlis (UniMAP).***
***Category: A***
***Description:*** *The existence in industries of toxic metals created by mineral processing causes a significant threat to the water environment. Metal ions are often non-biodegradable products, and high amounts may cause damage to the human body, animal and ecological environment. Copper, nickel, lead, silver, and zinc*

*are frequent heavy metals in industrial wastewater. Copper and nickel overdose to human body causes headaches, diarrhea, liver and kidney failure. Thus, removing copper and nickel metal ions from industrial waste to water is important to reduce heavy metal exposure. These products are from geosynthesis reaction from aluminosilicate precursor and alkaline activator solution that is a new technology of self-supported alkali-activated materials that have good physicochemical properties such as large surface area, isotropic pore distribution, available polar sites and reproducibility in the degree of activation. Additions of hydrogen peroxide as foaming agent increased the porosity and consequently the permeate flux with a reasonable compressive strength that was suitable for an effective adsorbents.*
***State of development: Product***
***Contact:*** *massdiyanaibrahim@gmail.com*
***Presentation link:*** *https://www.unimap.edu.my/index.php/en/*

***3.***

***Title: OPTOELECTRONIC NEURAL NETWORK BASED ON DYE-SENSITIZED SOLAR CELLS FOR ZERO ELECTRIC POWER CONSUMPTION-AIDSSC***
***Project number: 728 PED/2022 (PN-III-P2-2.1-PED-2021-0624)***
***Author/s: Marinela MICLAU 1*, Daniel URSU 1, Melinda VAJDA 1, Nicolae MICLAU 2***
***Institution: 1- Institutul National de Cercetare Dezvoltare pentru Electrochimie si Materie Condensata Timisoara (INCEMC) and 2- Politehnica University Timisoara***
***Category: A***
***Description:*** *For the first time worldwide, AIDSSC project proposes to develop and validate an optoelectronic neural network prototype based on dye-sensitized solar cells for zero electric power consumption in the outdoor and indoor lighting conditions. In this context,* ***the project is aimed*** *to design, build, learning and test an optoelectronic neural network prototype based on dye-sensitized solar cells for zero electric power consumption in the outdoor and indoor lighting conditions, as a technically and economically credible concept for the artificial intelligence devices.*
***State of development: Concept***
***Contact:*** *marinela.miclau@gmail.com*
***Presentation link:*** *https://incemc.ro/en/*

***4.***

***Title: RESEARCH AND DEVELOPMENT ACTIVITY IN THE ALTERNATIVE ENERGY INDUSTRY AND ITS IMPACT ON THE ENVIRONMENT AND POPULATION***
***Patent/project number: -***
***Author/s: Mircea-Iosif RUS, Larissa Margareta BĂTRÂNCEA, Adrian-Victor LĂZĂRESCU***
***Institution: NIRD URBAN-INCERC Cluj-Napoca Branch***
***Category: A***
***Description:*** *The use of wind power plants or photovoltaic panels in a less developed country could provide people with electricity, with increase in comfort level and, implicitly, intellectual level in terms of education and means of information. Over time, it has been observed that there is an increase in energy consumption, which causes fossil fuel resources to decrease and, at the same time, to pollute the atmosphere. Moreover,*

*worldwide, conventional energy is owned by a limited number of organizations that, for this reason, can afford to dictate the amount exploited and set energy prices, a resource of strategic importance. Under these conditions, renewable or alternative energy, produced by nature, has become very important, being a life-saving solution in these conditions, cheap and with a very high impact on the environment. Today, the global temperature has risen by 1.1°C more than 30-40 years ago, although the COVID-19 pandemic has caused a decrease in CO2 emissions, global warming remains on a wrong path, which it affects us all. Alternative energy is also obtained due to the research-development activity, activity from which it is going to put into practice its results. These results are present especially in the investments made, subsequently, by the companies producing alternative energy.*

***State of development: Research project***

***Contact:*** *mircea.iosif@incerc-cluj.ro*

***Presentation link:*** *https://youtu.be/4G5JRwceq3g*

***5.***

***Title: Cu-Doped AC/TiO2 TERNARY COMPOSITE PHOTOCATALYST FOR EFFICIENT PHARMACEUTICALS WATER TREATMENT***

***Patent/project number: Copyright CRLY2021P00671***

***Author/s: Noorulayuni Atiqah Yaacob, Azduwin Khasri, Noor Hasyierah Mohd Salleh, Mohd Ridzuan Mohd Jamir***

***Institution: Universiti Malaysia Perlis***

***Category : A***

***Description:*** *The use of pharmaceuticals has grown sharply especially during pandemic Coronavirus (COVID-19) and thus there is great concern about the potential environmental impacts of the effluents. Antibiotics are among the most commonly pharmaceuticals reported occur in the water cycle (surface water, groundwater, drinking water and wastewaters) as well as in the soil, sewage sludge and sediments. Cu doped AC/TiO2 is a novel photocatalyst which can be produce using a simple and rapid method via microwave sol-gel method. Assembling AC, TiO2 and Cu ternary composite structure can simultaneously increase pollution uptake, extend the light absorption edge, and reduce the recombination of electrons and holes via synergistic effect of AC and metal Cu. The finding shows that Cu doped AC/TiO2 ternary composite photocatalyst produced can remove pharmaceutical effluent such as metronidazole antibiotic as high as 90% and shows synergetic mechanisms with three possible interactions (electrostatic attractions, π–π stacking interaction, and n–π stacking interactions) as well as excellent recycle performance.*

***State of development: Scientific Paper***

***1. Noorulayuni Atiqah Yaacob, Azduwin Khasri, Noor Hasyierah Mohd Salleh, Mohd Ridzuan Mohd Jamir. Optimization of AC/TiO2-Cu Ternary Composite Preparation with Enhanced UV Light Activity for Adsorption–Photodegradation of Metronidazole via RSM-CCD. Journal of Dispersion Science and Technology, 2022 (Status: Accepted, Q4: IF 1.937)***

***2. N. A. Yaacob, A. Khasri, M. J. M. Ridzuan, and N. H. M. Salleh. Statistical optimization of methylene blue dye removal efficiency by merbau based activated carbon via RSM-CCD. AIP Conference Proceedings 2339, 020223 (2021); https://doi.org/10.1063/5.0044406***

***3. N. A. Yaacob, A. Khasri, M. J. M. Ridzuan, and N. H. M. Salleh. Statistical Optimization of AC/TiO2-Cu Composite Synthesis via Response Surface Methodology (RSM). Journal of Mechanical Engineering (JMechE), 2022 (Status: Accepted)***

*4. N. A. Yaacob, A. Khasri, M. J. M. Ridzuan, and N. H. M. Salleh. Optimization of Adsorption/Photodegradation Phenomena on Activated Carbon Modified with Titanium (IV) Isopropoxide Composite for Malachite Green Dye Removal. AIP Conference Proceedings, 2022 (Status: In publication)*
*Contact: azduwin@unimap.edu.my*
*Presentation link: https://www.youtube.com/watch?v=CiFEmdgwo68*

*6.*

*Title: SELF-CLEANING ASSYMETRIC POLYVINYLIDENE FLOURIDE-CO-POLYTETRAETHYLENE (PVDF-CO-PTFE) MEMBRANE FILLED WITH TITANIUM DIOXIDE FOR METHYL ORANGE DYE REMOVAL*
*Patent/project number: student project*
*Author/s: Syiefa Nafisah Binti Aminnudin, Amira Mohd Nasib, Mohamad Syahmie Mohamad Rasidi, Siti Kartini Enche Ab Rahim, Hoo Peng Yong & Ng Qi Hwa*
*Institution: UNIVERSITI MALAYSIA PERLIS (UniMAP)*
*Category: A*
***Description:*** *Polymeric membrane has been widely used in membrane technology due to the lightweight, proceesability into a thin film, huge variations in structure and properties. However, current polymer membrane suffers fouling due to the foulant blockage on the membrane surface when it been used repeatedly over the time. Therefore, this is where photocatalyst come to plays. The additional of photocatalyst such titanium dioxide on the membrane surface able to give self-cleaning ability to the membrane, hence the reuseability of the polymeric membrane can be extended. Photocatalytic based membranes offer potential solutions and novel ideas for further improvement of membrane technology. High hydrophobicity and porosity with an ability to undergo photocatalytic process of this products make them great candidate for the water treatment applications.*
***State of development:***
*Contact: amira@unimap.edu.my*
*Presentation link: https://www.unimap.edu.my/index.php/en/*

*7.*

*Title: MULTI-STRESS TOLERANT BIOCATALYST FOR LIGNOCELLULOSIC ETHANOL PRODUCTION*
*Patent/project number: Fundamental Research Grant Scheme (FRGS) No. FRGS/1/2014/SG05/UNIMAP/02/2*
*Author/s: Muhammad Zulhilmi Ishak, Khadijah Hanim Abdul Rahman, Ku Syahidah Ku Ismail, Siti Erma Rusniza Abdul Rashid & Mohd Nazalan Mohd Najimudin*
*Institution: Universiti Malaysia Perlis*
*Category: A*
***Description:*** *Biofuels from lignocellulosic materials are becoming an increasingly important alternative to fossil fuels.*

*To ensure that the process economics for industrial ethanol production is feasible, the biocatalyst involved in the fermentation process must be capable of fermenting all the sugars present in the hydrolysates, including xylose, with high ethanol yields and productivities.*

*To add to the challenge in fermenting xylose to ethanol, high temperature fermentation is required to cope with the temperature differences between saccharification and fermentation process.*

*Thus, a novel strain capable of producing ethanol from glucose and xylose at high temperature with tolerance to inhibitors was successfully isolated and named as Pichia kudriavzevii UniMAP 3-1. Implementing and promoting cost-effective bioethanol production from biomass is definitely a strategic move which supports the government's aim to accelerate renewable energy implementation to 20% of total Malaysian energy mix by the year 2025 and able to mitigate carbon emission and climate change caused by fossil fuel combustion.*

***State of development: Research Project***
***Contact:*** *kusyahidah@unimap.edu.my*
***Presentation link:*** *https://www.unimap.edu.my/index.php/en/*

*8.*

***Title: Hemerocallis x hybrida hort. 'FRUMOASA' (Day lily).***
***Patent/project number: MD 363/30.06.2021.***
***Authors: Dr. Svetlana MANOLE, Dr. Tatiana SÎRBU, Dr. Ion ROȘCA***
***Institution: „Alexandru Ciubotaru" National Botanical Garden (Institute), Republic of Moldova***
***Category: A***
***Description:*** *The Day Lily variety 'FRUMOASA' was obtained in the National Botanical Garden (Institute) "Alexandru Ciubotaru" of Republic Moldova, by hybridizing the varieties ♂ Missouri Beauty x ♀ Chipper Chery. Rhizomatous perennial plant with numerous linear, light-green leaves.*

*The plants are about 90 cm tall in the flowering stage. The flowers are simple, about 16cm in diameter, salmon pink. The edge of the tepals is very wavy.*

*The inflorescences consist of 5-7 flowers. 7-10 year old plants produce 15-18 flower stalks. The flowering stage lasts from June till July. It lasts 50-60 days. This cultivar can grow in sunny and half-shaded areas.*

*It is undemanding towards soil, but the plants that grow on rich soil are more vigorous. The plants are very resistant to pathogens, pests and unfavourable environmental conditions. This cultivar is recommended for cut flowers production, in various floral decorations, in landscape planning; can be promoted as a container plant.*

*The variety was approved and recommended for patenting application by the Scientific Council of the „Alexandru Ciubotaru" National Botanical Garden (Institute) and with the financial support of the project „Research on mobilizing plant diversity with ornamental potential for ex situ conservation"-20.80009.7007.14.*

***State of development: product***
***Contact:*** *gradinabotanicachisinau@gmail.com* *tatianaonica17@gmail.com*
***Presentation link:*** *https://gbni.md/en*

**9.**

***Title: The new cultivar 'SOFIA' of eastern galega Galega orientalis Lam.***
***Patent: MD 00013/2022.05.05***
***Authors: Dr. Victor ȚÎȚEI, Dr. Alexandru TELEUȚĂ***
***Institution: "Alexandru Ciubotaru" National Botanical Garden (Institute)***
***Category: A***
***Description:*** *The new cultivar 'SOFIA' is sown in a pure or mixed culture with several species of grasses and legumes, the established plantations are maintained for 15-20 years, symbiotic nitrogen fixation capacity of 100-150 kg/ha/year.*

*It can be used in phytoremediation of degraded lands and the valorization of marginal and polluted lands. The yield of aerial fresh mass (2-3 cuts / season) reaches 78-92 t/ha or 15-20 t/ha dry biomass, may be use as forage for husbandry animals (natural fodder, hay, haylage, vitaminized flour) with feed value: 16.3-22.5% CP, 28.1-33.0% ADF, 46.0-53.4% NDF, 3.9-5.0% ADL, 9.0- 12.6% ash, 18.8 % TSS, 63.0-74.0 % OMD, RFV=123-137 , 10-11 MJ/kg ME and 5.8-6.1 MJ/kg NEl.*

*Also as feedstock for renewable energy production in biogas plants with methane potential of 305-350 l/kg. The eastern galega seed plantations ensure a 40-60-day beekeeping season (May-July) with a honey production potential of 400-600kg/ha.*

***State of development: scientific product - Financial support from National Agency for Research and Development, projects no. 20.80009.5107.02. and 20.80009.7007.01***
***Contact:*** *vic.titei@gmail.com ateleuta@gmail.com gradinabotanicachisinau@gmail.com*
***Presentation link:*** *https://gbni.md/en*

**10.**

***Title: CERASUS TOMENTOSA (Thunb.) Wall. 'Andreia'***
***Patent: v2022 0007***
***Authors: Dr. Ion ROȘCA, Dr. Elisaveta ONICA, Dr. Alina CUTCOVSCHI-MUȘTUC, † Dr. hab. Alexei PALANCEAN***
***Institution: National Botanical Garden (Institute) „Alexandru Ciubotaru", Republic of Moldova***
***Category: A***
***Description:*** *The 'Andreia' cultivar is a shrub characterized by exceptional abundance of flowering, fruiting, as well as weight (2.1-2.7 g) and size (13-16 mm) of fruits.*

*Fruits contain carbohydrates, organic acids, vitamins, minerals, beta carotene, melatonin, serving as a natural source of phytonutrients.*

*The cultivar is used as a fruit-bearing, honey-bearing and ornamental plant for landscaping.*

***State of development: project - Financial support from National Agency for Research and Development, project no. 20.80009.7007.19***
***Contact:*** *roscasilva@yahoo.com*
***Presentation link:*** *https://gbni.md/en*

***11.***

***Title: THE ASSESSMENT OF THE SPONTANEOUS VEGETATION OF THE REPUBLIC OF MOLDOVA FOR THE CONSERVATION AND THE SUSTAINABLE USE OF PLANT DIVERSITY AND PLANT GENETIC RESOURCES IN THE CONTEXT OF ADAPTATION TO CLIMATE CHANGE***
***Patent/project number: 20.80009.7007.01 (State program 2020-2023)***
***Author/s: MIRON Aliona, project manager, POSTOLACHE Gheorghe (coord.), GALUPA Dumitru (coord.), TALMACI Ion (coord.)***
***Institution: "Alexandru Ciubotaru" National Botanical Garden (Institute), Forest Research and Management Institute***
***Category: A***
***Description:*** *The project addresses a multidisciplinary thematic area covering fundamental and applied research field, such as, geobotany, forestry, forest genetics, grassland assessment and management, conservation and sustainable management of plant diversity and forest genetic resources, climate change, database management. The project aims at incorporating scientific results in the development strategies and priorities of the country by correlating them with the approved policy documents in the field of environmental protection.*
*The general purpose of this project is to provide scientific support for improving the conservation and sustainable use of plant diversity and plant genetic resources.*
*The main objectives are focused on the following aspects:*

- *Identification and description of new sectors of forest vegetation with high conservation value and new forest genetic resources; development of recommendations for their conservation and sustainable management; development of National Catalog of Forest Genetic Resources and completing the European EUFGIS database with the new FRG identified in the Republic of Moldova.*
- *Description of grassland flora and vegetation in Orhei National Park, identification of habitats of high conservation value, typological classification, ex situ conservation of genetic resources of cereal grasses and perennial leguminous species in grasslands.*
- *Estimation of current carbon stock in the forest and grassland ecosystems of the Republic of Moldova; assessment of drivers of carbon stock degradation in forests and grasslands and development of recommendations for reducing greenhouse gas emissions.*
- *Monitoring, evaluation and maintenance of populations of rare and threatened plant species in the Exhibition "Vegetation of Moldova", ex situ conservation of new rare plant species.*

***State of development: research project (ongoing)***
***Contact:*** *aliona_miron@yahoo.com gradinabotanicachisinau@gmail.com icas@moldsilva.gov.md*
***Presentation link:*** *https://gbni.md/en http://www.moldsilva.gov.md/*

***12.***

***Title: MODULAR EQUIPMENT FOR DISTRIBUTED PROCESSING OF ORGANIC WASTE***
***Patent/project number: BR1020190246243***
***Author/s: Camilo Freddy Mendoza Morejon; Andy Avimael Saavedra Mendoza***
***Institution: Western Paraná State University – Unioeste, Brazil***

***Category: A***
***Description:*** *Patent of equipment that, for the vermicomposting, process of domestic organic waste to obtain differentiated value-added products (humus, liquid fertilizer and surplus earthworms). The equipment's differential lies in the characteristics of the cells, in the support of the cells, in the slurry reservoir, in the complementary devices and in the elements that provide the functionality, size and capacity of operation with maximum efficiency.*
***State of development: prototype***
***Contact:*** *camilo_freddy@hotmail.com*
***Presentation link:*** *https://www.unioeste.br/portal/ciencia-e-inovacao/nit/inicio*

***13.***

***Title: HYBRID PROCESS FOR CENTRALIZED INDUSTRIALIZATION OF DOMESTIC ORGANIC WASTE***
***Patent/project number: BR 10 2020 012074 3***
***Author/s: Camilo Freddy Mendoza Morejon; Andy Avimael Saavedra Mendoza***
***Institution: Western Paraná State University – Unioeste, Brazil***
***Category: A***
***Description:*** *Hybrid process patent for the industrialization of organic waste and obtaining 17 value-added products. The process includes a set of stages, whose novelty elements are found in the process flow, in the operational characteristics of each stage, in the differentiated use of organic waste and also in the value-added products.*
***State of development: method***
***Contact:*** *camilo_freddy@hotmail.com*
***Presentation link:*** *https://www.unioeste.br/portal/ciencia-e-inovacao/nit/inicio*

***14.***

***Title: THE PROCESS FOR OBTAINING THE HYBRID PHOTOCATALYST BASED ON NANOCRYSTALLINE TIO2 AND DIATOMITE BY ELECTROLYSIS***
***Patent/project number: Nr. s 2021 0046, 2021 05 31***
***Author/s: Tatiana Dațko, IFA, Veaceslav Zelențov, IFA, Dmitri Dvornikov, IIEN, Iurii Sainsus, IIEN***
***Institution: Institute of Electronic Engineering and Nanotechnologies (IIEN); Institute of Applied Physics (IFA)***
***Category: A***
***Description:*** *A method for producing a hybrid photocatalyst based on nano dimensional titanium dioxide and local diatomite (NTD). The method consists in processing the mixture of diatomite and titanium dioxide precursor in the cathode chamber of the two-chamber electrolyzer by passing an electric current with a density of 30-100 mA/cm2 through an aqueous suspension of diatomite and titanium dioxide precursor. Method characterized in that heterogeneous hydrolysis of the precursor by electrolysis products is carried.*
*Advantages of the proposed process compared to the classic procedures:*

- *Increasing the synthesis productivity by reducing the number of operations;*
- *The synthesis time reduction - 30 minutes instead of 20 hours;*
- *Exclusion of toxic chemical reagents HCl and NH4OH.*

*A product with new properties was obtained:*

- *increased specific surface area -198.1 instead of 108.3 m2/g at the comparison sample;*
- *anatase crystallite size of 8 nm instead of 15.3 nm;*
- *adsorption value of standard dye - methylene blue 64.9 mg/g compared to 37.5 mg/g.*

***State of development: scientific paper***
***Contact:*** *tatiana.datsko@ifa.md vzelen@ yandex.ru*
***Presentation link:*** *https://phys.asm.md*

***15.***

***Title: METHOD FOR ULTRASONIC WELDING OF PARTS WITH SPATIAL CONFIGURATION OF JOINING ZONES***
***Patent/project number: patent no. 133155 B1 / 29.07.2022***
***Author/s: Nicuşor-Alin SÎRBU***
***Institution: National Research & Development Institute for Welding and Material Testing - ISIM Timişoara, Romania***
***Category: A***
***Description:*** *The invention relates to a method of ultrasonic welding of parts with a spatial configuration of the joining zones using sonotrodes equipped with pins that can be replaced according to their wear, allowing the reuse of the sonotrode. The technical problem that the invention solves is the need to provide constructive solutions for the construction of sonotrodes that can be used for welding complex parts with spatially arranged joining zones, which can usually only be made in a plan, these types of sonotrodes representing solutions for given industrial applications. The method is applicable for the whole frequency range of the ultrasonic field. The pin length, which provides a sonotrode for ultrasonic welding of workpieces with spatial configuration of joint zones, i.e. their tolerance field, is limited by the resonant frequency of the sonotrode. The sonotrodes must provide a constant working value of the ultrasonic microvibration amplitude at the pin active zone level, specific to the welding operations to be performed.*
*Advantages:*
*- Makes it possible to simultaneously weld parts with spatial configuration of welding zones under joint quality conditions;*
*- Increases work productivity, compared to the situation where welding could only be performed in plan and more operations were needed to weld parts with spatial configuration of joining zones;*
*- These specialized sonotrodes, thanks to the constructive solution of the method, allow the replacement of worn parts in the sonotrode composition with new ones and the containment of welding operations with the same sonotrode;*
*- The solution makes it possible to obtain new sonotrode configurations for welding parts with spatial arrangement of welding zones by replacing the pins at the level of the equalizer block;*
*- Welded joints can be made for a wide range of polymeric materials as well as metallic or composite materials.*
*State of development: concept*

***Contact:*** *isim@isim.ro* ***+40256491831***
***Presentation link:*** *www.isim.ro*

***16.***

***Title: MEMORICE (Meniran Rice) Analog Rice Innovation With Phyllanthus urinaria Which Is Rich In Antioxidant Compounds To Increase Immunity During Pandemic***
***Patent/project number: -***
***Author/s: Az Zahra Leilany Widjanarka, Calysa Abelina Santoso, Glenn Emmanuel Abraham, Didar Jayeng Kertayojya, Vinia Arindita Trishanti***
***Institution: SMA PRADITA DIRGANTARA***
***Category: A***
***Description:*** *Rice is consumed by 95% of Indonesia's population. Indonesia imported 1.92 million tons of rice. If this happens continuously it will cause food security problems that extend to the country's economic problems. In overcoming this problem efforts are needed to support national food security with analog rice.*

*Analog rice is an effort to reduce the dependency of the Indonesian people on consuming very high rice, in this case, food diversification is needed.*

*Local ingredients such as flour and starch are very diverse in types and their nutritional content is not inferior to rice, including mocaf and sweet potato are used as substitutes for local rice. In addition, the addition of antioxidants and protein compounds in analog rice is expected to have an impact on the body and can increase the immune system.*

*The sources of antioxidants and protein are Meniran (Phyllanthus urinaria) and protein isolate. This research has several stages, material preparation, making analog rice, and analog rice characterization by organoleptic analysis (taste, aroma, texture, and color), the best results will be continued for chemical testing (proximate), and antioxidant activity. The research was conducted at the Biology Laboratory of Pradita Dirgantara High School from February 2022 to March 2022.*
***State of development: Product***
***Contact: 0817-7091-4129***
***Presentation link:*** *https://youtu.be/ZdqO6JBk_Lk*

***17.***

***Title: METHOD FOR DETERMINING THE CONCENTRATION OF -SH GROUPS IN SURFACE WATERS***
***Patent/project number/Patent application no. MD a 2022 0030/2022.06.03***
***Author/s: Vladislav BLONSCHI, Viorica GLADCHI, Gheorghe DUCA***
***Institution: Moldova State University***
***Category: A***
***Description:*** *The invention refers to the field of ecological chemistry and can be used in the rapid and accurate determination of the concentration of -SH groups in natural waters to estimate their ecochemical state and in the identification of water pollution with proteinaceous compounds.*

*The invention represents a spectrophotometric method for determining the content of -SH groups in complex solutions, which is modified and adapted to ecological chemistry.*

***State of development: Application of the method in estimating the content of SH-groups in surface waters in the river basin of the Dniester River.***
***Contact: tel.: +373 68126150; E-mail: blonschivlad@mail.ru***
***Presentation link: https://usm.md/?lang=en***

***18.***

***Title: THE SOCIO-ECONOMIC MODEL OF FINANCIAL REPORTING IN THE CONTEXT OF RECOGNISING POWER OVER PROPERTY AS A CRITERION FOR ASSESSING THE ESG-BEHAVIOUR OF BUSINESS***
***Project number: 22.00208.0807.09/PD***
***Authors: Irina GOLOCHALOVA, Maria COJOCARU***
***Institution: Moldova State University***
***Category: A***
***Description:*** *The modern technological order is characterised by both impressive scientific and technological advances and the scale of social and environmental problems that lead to the degradation of society and environmental degradation.*

*A new paradigm, the Concept of Sustainable Development, aims to neutralise the effects of these phenomena by interpreting business as a balanced system consisting of three components: economic, environmental and social.*

*The conceptual platform developed for the socio-economic reporting model is based on the convergence of financial reporting theory and the concept of social responsibility.*

*A limitation for the adoption of the socio-economic model was the lack of a criterion for recognising ESG (Environmental, Social, and Governance) -responsibility performance of a business in reporting. It has been established that the criterion for transforming an uncertain responsibility into an ESG obligation for business in relation to the environment, as a whole and for society, is the power over of property-related stakeholders.*

*The socio-economic reporting model prepared on the basis of the identified recognition criterion reflects the results of the fulfilment of the business Environmental-obligation and demonstrates the careful attitude and contribution of the business to environmental regeneration for the purpose of sustainable development.*

*This research is supported by the scientific project "The methodology of accounting and financial reporting in the conditions of the innovation vector of the economy", registered under number _22.00208.0807.09/PD in the State Register of Projects in Science and Innovation of the Republic of Moldova.*
***State of development: Application for registration of copyright and related rights has been submitted to the State Intellectual Property Agency (AGEPI).***
***Contact: tel.: +373 60287573; E-mail: irina.golocialova@usm.md***
***Presentation link: https://drive.google.com/file/d/1-1E441lc9s7VJN4fbt_etgkA5GkI57kf/view?usp=sharing***

**19.**

***Title: ELECTRICAL NETWORK FAULT SIGNALING DEVICE***
***Patent/project number: Patent Application A/00199/2021, EP 21464001.3***
***Author/s: Ovidiu Magdin Țanța, Mihaela Pavăl, Laurențiu-Dan Milici, Oana Vasilica Grosu, Eusebiu Toader, Pavel Atănăsoae, Valentin Popa***
***Institution: University Ştefan cel Mare of Suceava***
***Category: A***
***Description:*** *The automatic device for signaling the failure of the electrical network, according to the invention, consists mainly of a tube mounted on the electrical conductor which has inside a quantity of ferrofluid which will move inside the tube when a defect occurs. The automatic fault signaling device of the electrical network, according to the invention, consists mainly of a tube of non-ferromagnetic material 1, having inside a quantity of ferrofluid 2, at one end it is provided with a permanent magnet 3, and at the other end with an indicator element 4 which can be actuated by the piston rod 5 and the spring 6. The tube is fixed by an electrical conductor 7 by means of the electrical insulating fastening support 8. Under normal network conditions, at rated current through conductor 7, the ferrofluid 2 is maintained at the left end of tube 1 by the permanent magnet 3, which is dimensioned according to the value of the rated current through conductor 7. In the event of a fault in conductor 7, the increase of the current determines the displacement of the ferrofluid 2 towards the opposite end of the tube 1, where, by means of the piston rod 5, the indicator element 4 acts.*
***State of development: Theoretical model.***
***Contact:*** *costel@usm.ro*
***Presentation link:*** *https://youtu.be/Gozhz1Qvaig*

**20.**

***Title: PROCEDURE FOR THE DRINKING WATER TREATMENT***
***Project number: No. 132097/2021***
***Author/s: Florica Manea, Katalin Bodor, Ilie Vlaicu, Nicoleta Lungar, Aniela Pop, Rodica Pode***
***Institution: Politehnica University of Timişoara, AQUATIM COMPANY***
***Category: A***
***Description:*** *The invention relates to a procedure for the advanced treatment of drinking water, for the treatment of industrial and waste effluents and for the treatment of municipal wastewater, based on a modular installation, which includes an electrolyzer equipped with boron-doped diamond electrodes. The application of the proposed process is based on the reactions obtained with boron-doped diamond electrodes, which can function both as an electrooxidation/electroreduction and electro-disinfection process. The operation of the electrolyzer in the process of anodic oxidation by applying an appropriate polarity allows the removal of ammonium, nitrite and organic loading from the water. By simply changing the polarity of the electrolyzer, the conditions of a cathodic process are ensured, which allows the removal of nitrate from the water. The process for treating drinking water according to the invention has the following advantages: high degree of removal from the water of several types of pollutants / impurities (organic loading, ammonium, nitrite, nitrate, microorganisms), simple operation with the possibility of total automation and high versatility.*

***State of development: prototype***
***Contact:*** *florica.manea@upt.ro*
***Presentation link:*** *https://www.upt.ro/ https://citt.upt.ro/en/*

***21.***

***Title: SYSTEM FOR FUNCTIONALIZED MEMBRANES TESTING FOR WATER TREATMENT***
***Project number: A/00742/21.03.2022***
***Author/s: Lavinia Lupa[1], Petru Negrea[1], Laura Cocheci[1], Anca Filimon[2]***
***Institution: 1 University Politehnica Timisoara, Faculty of Industrial Chemistry and Environmental Engineering, Timisoara, Romania ; 2 "Petru Poni" Institute of Macromolecular Chemistry, Iasi, Romania***
***Category: A***
***Description:*** *Carrying out a study of the areas of interest in the Făgăraş area and of the phytocenotic survey. Inventory and mapping of useful flora by relief units, by soil types, by zonal or altitudinal vegetation units. Qualitative and quantitative analyses from a technical-economic perspective of products from the studied plots and analysis of the economic potential of these areas, quantitative and qualitative for each useful species. Elaboration of a study on the sustainable exploitation of resources. Stimulating cooperation in order to create recognized local brands.*
***State of development: prototype***
***Contact:*** *lavinia.lupa@upt.ro*
***Presentation link:*** *https://www.upt.ro/ https://citt.upt.ro/en/*

***22.***

***Title: EXPERIMENTAL STAND WITH DIGITAL MULTIMETER MADE WITH ARDUINO NANO***
***Patent number: laboratory project***
***Authors: Gabriel Nicolae Popa, Corina Maria Diniş***
***Institution: Politehnica University Timişoara, Faculty of Engineering Hunedoara***
***Category: A***
***Description:*** *The first device for indicating a current, a galvanometer, has used in 1820. It is also used to measure resistance and voltage using a Wheatstone bridge by comparing an unknown quantity with a known quantity. A Digital multimeter presented, built, and tested in the laboratory, can measure several electrical parameters: direct voltage, RMS voltage, direct current, RMS current, active, reactive, apparent power, minimum and maximum values, frequency of alternating voltage and measurement time. For simplicity, the multimeter has only one measurement range, for voltage maximum values (56 V direct voltage or 40 V alternating voltage), and for current maximum values (5 A direct current or 3.54 A alternating current). A maximum of two parameters have displayed on the LCD display at a given time and can be selected according to preferences.*

*Four buttons can be used to configure the information on the LCD display. At the base of the multimeter is an Arduino Nano board (cheap) in which the program that performs the multimeter function has been implemented.*

*The digital multimeter measures several electrical quantities, some of them RMS voltage and RMS current, with good accuracy (up to 5% for currents and up to 2.5% for voltage). It can be successfully used in laboratory work as well as in research related to the measurement of electrical quantities.*

***State of development: prototype***

***Contact: Gabriel Nicolae Popa; Telephone: 0040254207541 Email: gabriel.popa@fih.upt.ro***

***Presentation link:***
***https://uptro29158-my.sharepoint.com/:v:/g/personal/gabriel_popa_upt_ro/EdM8ryYX55ZFiPZBSHa2NnUBLlhqbiargsrkRspGhZ3Xtw?e=eDhBYi***

**23.**

***Title: STUDY CONCERNING METHODS FOR MANAGING USED ENGINE OIL. ANALYSIS OF A QUESTIONNAIRE-BASED SURVEY***

***Patent/project number: PhD thesis***

***Author/s: DIANA MIRUNA ARMIONI[1], IOANA IONEL[2], SORIN AUREL RAȚIU[1]***

***Institution: Politehnica University Timişoara, Faculty of Engineering Hunedoara 1, Mechanical Engineering 2***

***Category: A***

***Description:*** *This paper focuses on methods of managing used engine oil by presenting an analysis of the results of a survey based on a questionnaire designed by the authors, which aims to illustrate the real, objective situation of the management of used engine oil generated by vehicles powered by internal combustion engines.*

*The answers are analyzed for each question separately and both conclusions and implementable objectives that could improve the current situation are highlighted. In order to facilitate the understanding of the current framework, general aspects regarding the management of used engine oil are also presented, with an emphasis on the legislative perspective.*

***State of development: scientific paper***

***Contact: armionimiruna@yahoo.com***

***Presentation link: https://www.upt.ro/***

**24.**

***Title: VERTICAL SHAFT WIND TURBINES WITH POWER CONTROL***

***Patent/project number: Patent nr. 1616 Y MD, of 30.04.2022***

***Author/s: Viorel Bostan; Ion Bostan; Valeriu Dulgheru; Marin Guțu; Ivan Rabei; Ion Bodnariuc; Oleg Ciobanu; Radu Ciobanu.***

***Institution: Technical University of Moldova***

***Category: A***

***Description:*** *The invention relates to devices for converting wind energy into electricity, in particular to vertical axis wind turbines with power control.*

*The problem solved by the invention consists in increasing the protection of the electric generator from overloads by automatic power control and increasing the reliability of the dynamic mechanical elements of the turbine.*
***State of development: research project, computerized model***
***Contact:*** *oleg.ciobanu@bpm.utm.md*
***Presentation link:*** *www.utm.md*

**25.**

***Title: CLIMATE CHANGE CURB***
***Patent/project number: student project***
***Author/s: Zainab Arzouni***
***Institution: Shohour Public High School, Lebanon***
***Category: A***
***Description:*** *I'm a 17 year old lebanese student joining Shohour Public High School in the last year. I launched my own initiative entitled* ***Climate Change Curb****, by creating a whatsapp group where I invited people from all over the world, (Lebanon, Egypt, Romania, Malaysia, Indonesia, India, UAE, Zimbabwe…) to join in this initiative. I sent to them videos of me introducing climate change for them to increase awareness of this problem, also I sent them video of me planting trees and they started planting and sent me videos of their plants. I knew that trees is the only cure for Climate Change as one tree can absorb 22KG of Carbon dioxide a year which is huge, since as we know that carbon dioxide is one of the poisonous gasses causing climate change.*
***State of development: environmental project***
***Contact:*** *zeinabarzouni94@gmail.com*
***Presentation link:*** *https://www.youtube.com/shorts/rfG6RfAWXzw*

**26.**

***Title: COLLECTION OF THE SMALL PATENTS***
***Patent/project number: List of patents***
***Author/s: Tomislav Trišović***
***Institution: Aqua Crystal, Belgrade, Serbia***
***Category: A***
***Description:*** *The collection includes a number of 13 patents all are based on the idea of electrochemical water treatment. Unlike active chlorine, which is not healthy, we have created and patented various types of devices for the treatment of all types of water: drinking water, waste water, for swimming pools and spas, and so on.*
***List of all patents:***
***1. B. Grgur, T. Trišović, M. Gvozdenović, B. Jugović, L. Rafailović, "Controllers for measuring water quality", MP-2017/0021[M92]***
***2. B. Grgur, T. Trišović, M. Gvozdenović, B. Jugović, S. Pašalić, L. Rafailović: "Device for the electrochemical production of active chlorine in a coaxial and cabinet type reactor", MP-2017/0020 [M92]***

*3. T. Trišović, N. Krstajić, N. Trišović, Tubular electrochemical reactor with mixed bipolar and unipolar connection, MP-38/97.*
*4. T. Trišović, N. Krstajić, N. Trišović, Tubular electrochemical reactor with bipolar connection of energy rails and unipolar (welded-pressed) connection of electrodes, MP-100/97.*
*5. T. Trišović, S. Radović, Device for manually filling vessels with a certain amount of liquid MP-39/97.*
*6. T. Trišović, T. Nikić, N. Trišović, Device for measuring liquid level in closed and open vessels, MP-42/98. (1998)*
*7. T. Trišović, N. Trišović Aeration device for drinking and waste water, MP-43/98 (1998)*
*8. Lj. Gajić-Krstajić, T. Simović, N. Trišović, T. Trišović, Device for uniform oxidation of aluminum foils whose surface is partially protected by a network of organic coating, MP-16/00, (2000).*
*9. T. Simović, Lj. Gajić-Krstajić, N. Trišović, T. Trišović, Device for obtaining elastic molecular microfilters from aluminum oxide in the form of foil, MP-15/00, (2000).*
*10. Lj. Gajić-Krstajić, N. Krstajić, N. Trišović, T. Trišović, Universal batch device for the electrochemical production of active chlorine - hypochlorite, MP-118/03, 2004 (protected small patent)*
*11. Lj. Gajić-Krstajić, N. Trišović, T. Trićović, Apparatus for the production of active chlorine, MP-104/04, 2005 (protected small patent).*
*12. Trišović, N., Trišović, T.: Device for the production of semi-moist mixtures with a planetary mechanism, MP-22/05, Belgrade, 2005.*
*13. T. Trišović, N. Trišović, Z. Trišović, A. Trišović, "Device for production and dosing of active chlorine with coaxial reactor and tanks", MP-2017/0022 [M92]*
***State of development:** Aqua Crystal is engaged in scientific, production and publishing activities. We are conducting research and development in Belgrade at the Institute of Technical Sciences of SANU, while the prototype production is located in Popovići near Kraljevo. All our products are patented and are the result of our own development.*
***Contact:** Tomislav Trišović +381637200083 **Email:** trisatrisatrisatrisa@gmail.com*
***Presentation link:** http://vode.rs/*

**27.**

***Title:** POLYMER ADDITIVE FOR IMPROVING LOW-TEMPERATURE PROPERTIES OF FUELS, BIOFUELS, LUBRICANTS, BIOLUBRICANTS AND CORRESPONDING BLENDS*
***Patent/project number:** Research project*
***Author/s:** FABIO FARAGUNA, MARKO RACAR, IVAN PUCKO, ANTE JUKIC*
***Institution:** University of Zagreb, Croatia, Faculty of Chemical Engineering and Technology*
***Category:** A*
***Description:** The composition of the polymer additives and the size of the molecules are tailored to be soluble and to significantly lower the pour point of various types of fuels, lubricants biofuels, biolubricants and corresponding blends. Even at low concentrations of 0.2 wt%, it improves the pour point (ASTM D 5950) of biodiesel by 9 °C, canola oil and crude oil by 12 °C, lubricating oil by 27 °C and diesel by 30 °C,*

*thus extending the range of application of the above mentioned fuels, lubricants biofuels and biolubricants from -6 °C to -48 °C.*
***State of development: prototype***
***Contact:*** *info@savez-inovatora-zagreba.hr*
***Presentation link:*** *https://www.savez-inovatora-zagreba.hr/*

**28.**

***Title: PROCESSING OF PULVEROUS FERROUS WASTE BY AGGLOMERATION***
***Patent number: student project***
***Authors: Ioja Liliana-Dorina; Coordinators: Socalici Ana Virginia, Corneliu Birtok-Băneasă***
***Institution: Politehnica University Timişoara, Faculty of Engineering Hunedoara***
***Category: A***
***Description:*** *The projects presents the results obtained after the laboratory testing of the of agglomeration process of pulverous ferrous waste. The obtained products are destined for use in the steel industry, as raw material for the production of steel. The worldwide development strategy of the metal industry consists in the advancement of new technologies that reduce the carbon emissions and grow the effective power of recovering and recycling by-products. The choice of the valorification procedure must be made having in view the features of the waste, the destination of the obtained product and the existing processing equipments in the waste area. The experimental agglomeration obtained have a high amount of iron 50%Fe. It is necessary to intensify the capitalization process of these waste for both economical (they represent a source of iron), technological and ecological reasons.*
***State of development: laboratory project***
***Contact:*** *dorislg24@yahoo.com*
***Presentation link:*** *https://www.fih.upt.ro/v4/eng/*

**29.**

***Title: ROMANIA: Shale gas could represent energy independence and lower bills***
***Patent/project number: Scientific Paper***
***Author/s: Valentin-Paul TUDORACHE[1], Niculae-Napoleon ANTONESCU***
***Institution: University PETROLEUM - GAS of Ploiesti, Romania***
***Category: A***
***Description:*** *The authors, under the aegis the General Association of Engineers in Romania (AGIR), the Romanian Academy of Scientists (AOŞR) and the Romanian Academy of Technical Sciences (ASTR), of this paper offer a pass in the magazine of deposits unconventional, highlights potential shale gas resources on the territory Romania, which can describe the important role in the local energy sector and not only. Romania consumes approximately 14 billion cubic meters of gas annually. This quantity is ensured in proportion of 80% of the domestic production, the difference of 20% is imported - at very high prices, through intermediaries - from the Russian Federation. In the near future, shale gas will have a number of favorable geostrategic and geopolitical implications for Romania, in the sense that increasing self-*

*sufficiency and energy security will improve storage capacity and, of course, the abandonment of the main foreign supplier – Russia. According to the Energy Information Administration (EIA) report on shale gas reserves in the European Union (EU), after Poland (4,190 billion cubic meters) and France (3,879 billion cubic meters), Romania ranks third with 1,444 billion cubic meters -so it can reduce the dependence on imported gases. Although the value potential of shale gas has long been recognized, a number of challenges have dampened expectations. However, despite a more favorable forecast, shale gas could represent Romania's energy independence and, obviously, lower bills, but there are concerns about the impact on the environment.*

***State of development: Scientific Paper***
***Contact:*** *valentin.tudorache@yahoo.com*
***Presentation (link): CNR-CME / FOREN 2022***

***30.***

***Title: INNOVATIVE PRODUCTS AND PROCESSES CONTRIBUTING TO THE LOW CARBON ECONOMY***
***Patent/project number: PhD thesis***
***Author/s: Diana Alina BLAGU***
***Institution: Technical University of Cluj-Napoca***
***Category: A***
***Description:*** *The thesis focuses on three areas of the carbon footprint, namely the readiness of manufacturing companies in Transylvanian to transition to LCE, the analysis of the carbon footprint of a milling process and developing and validating a set of guidelines for designing low carbon products. Our survey revealed that manufacturing companies from Transylvania have a proactive attitude towards the environment, that there are already measures they adopt to reduce their carbon footprint even if their goal is mostly to reduce costs and that the voluntary commitment in this direction is reluctant.*

*The assessment of the carbon footprint of a milling process showed that the emissions released are considerable and that minor innovations in this direction can improve the outcome of processes by reducing the carbon footprint. The guidelines developed for reducing the carbon footprint of manufactured products meet the expectations of design and production experts and are considered an effective approach for LCE and environmental protection.*

***State of development: PhD thesis***
***Contact:*** *diana.blagu@muri.utcluj.ro*
***Presentation link:*** *https://www.utcluj.ro/en/*

***31.***

***Title: COMPOSITION OF PHBV/PCL AND NANOEMULSION OF NISINE AND DILL ESSENTIAL OIL AND METHOD FOR ITS OBTAINING***
***Patent/project number: RO 00072/2022***

***Author/s: Maria Râpă, Elisabeta-Elena Popa, Andrei-Constantin Berbecaru, Ecaterina Matei, Andra Mihaela Predescu, Cristian Predescu, Paul-Alexandru Popescu, Amalia-Carmen Miteluț, Mona Elena Popa***
***Institution: University of Agronomic Sciences and Veterinary Medicine of Bucharest***
***Category: A***
***Description:*** *The invention relates to a composition based on a nanoemulsion of nisin and dill essential oil embedded in poly(vinyl alcohol) (PVA) solution to cover a poly(hydroxybutyrate-co-valerate)/poly(caprolactone) (PHBV/PCL) film and to a process for making antimicrobial, antifungal and biodegradable food packaging. In this purpose, the solutions of 8% PHBV and 10% PCL in dichloromethane (DCM), respectively were stirring at 60°C for 30 minutes and 400 rpm, and then mixed together in a volumetric ratio of 1:1. Nisin and dill essential oil nanoemulsion was encapsulated in 10% PVA solution. The process, according to the invention, consists in the co axial electrospinning of the mixture of components, with a flow rate of the PVA solution between 4 to 5 mL/h, a flow rate of the nisin and dill essential oil nanoemulsion in the range of 0.8...1.0 mL/h, a voltage in the range of 21.63...22.64 kV and the distance between the needle-collector tip of 14 cm. ADVANTAGES: Antimicrobial, antifungal and biodegradable food packaging; Coaxial electrospinning process is simple, versatile, without high energy; consumption and toxic solvents; Controlled release of bioactive compounds;*
*Increase of the shelf-life of food; Reduce the generation of packaging waste and food.*
***State of development: Patent application***
***Contact: Popa Elisabeta-Elena,*** *elena.eli.tanase@gmail.com*
***Presentation link:*** *https://www.usamv.ro/index.php/en/home-eng*

**32.**

***Title: PRODUCTION PROCESS AND MANNOPROTEIN PREPARATION OBTAINED BASED ON YEAST BIOMASS FROM THE WASTE OF THE WINE INDUSTRY***
***Patent/project number: no. a20220003/2022.01.26.***
***Author/s: Beşliu Alina, Chiseliţa Natalia, Chiseliţa Oleg, Efremova Nadejda, Tofan Elena, Sprincean Ana, Daniliş Marina.***
***Institution: Public Institution Institute of Microbiology and Biotechnology, Republic of Moldova.***
***Category: A.***
***Description:*** *The production process according to the invention includes the use of yeast biomass from wine industry waste which is subjected to autolysis with sodium phosphate buffer solution (1: 1 ratio) at +45° C for 8 hours, centrifugation, treatment of cell walls with 50% alcohol solution, centrifugation, hydrolysis with 1N NaOH solution, centrifugation, sedimentation of mannoproteins with 96% ethyl alcohol in a volume of 1:2, dissolution of mannoproteins in distilled water, standardization up to 10 mg/mL, it was established that mannoproteic preparation contains: proteins 57.84±0.9%, carbohydrates 31.40±2.65%, anthocyanins 12.42±0.08 mg/gL, trace elements 4.05 mg/ml, antioxidant activity 33.4±0.3%inhibition, SOD activity 263.0±4.04 U/mg protein and CAT 525.0±3.1 mmol/min per mg*

*protein. Areas of application: Environment-Pollution Control, Zootechnics, Agriculture, Medicine - Health Care-Cosmetics and Pharmaceutical Industry. The research was carried out within the project 20.80009.5107.16, funded by NARD.*
***State of development: The product is used in a laboratory at the Scientific-Practical Institute of Biotechnologies in Animal Husbandry and Veterinary Medicine and PhD thesis.***
***Contact: Beşliu Alina, e-mail: besliu.imb@gmail.com***
***Presentation link: https://imb.md/en***

***33.***

***Title: ANTIOXIDANT ANTHOCYANIN EXTRACT AND OBTAINING PROCESS FROM WASTE YEAST BIOMASS FROM WINE INDUSTRY***
***Patent/project number: no. a 20220011/2022.02.21.***
***Author/s: Chiseliţa Oleg, Chiseliţa Natalia, Tofan Elena, Beşliu Alina, Efremova Nadejda, Sprincean Ana, Daniliş Marina.***
***Institution: Institute of Microbiology and Biotechnology, Republic of Moldova.***
***Category: A.***
***Description:*** *According to the invention, an anthocyanin extract is proposed, which is obtained by thawing the yeast biomass from winery waste, homogenizing the suspension and autolysis at +45˚C for 8 hours or autolysis at +45˚ C for 8 hours in sodium phosphate buffer solution, centrifuging the suspensions, treating the remaining biomass with 50% ethyl alcohol, extracting for 30 min with agitator and centrifuging the suspension. The total content of anthocyanins in the extract is 65.60±0.5-134±2.6 mg/L. Areas of application: Environment-Pollution Control, Zootechnics, Agriculture, Medicine - Health Care-Cosmetics and Pharmaceutical Industry. The research was carried out within the project 20.80009.5107.16, funded by NARD.*
***State of development: Implementation: The product is used in laboratory at the Scientific-Practical Institute of Biotechnologies in Animal Husbandry and Veterinary Medicine.***
***Contact: Chiseliţă Oleg, e-mail: chiselita@mail.ru***
***Presentation link: https://imb.md/en***

***34.***

***Title: MEDIUM FOR LYOPHILISATION OF FUNGAL STRAINS OF THE GENUS TRICHODERMA.***
***Patent/project number: no. 1475 MD/2021.07.31***
***Author/s: Sîrbu Tamara, Timuş Ion, Gorincioi Viorina, Moldovan Cristina, Ţurcan Olga, Bogdan Nina.***
***Institution: Public Institution Institute of Microbiology and Biotechnology, Republic of Moldova.***
***Category: A.***

***Description:*** *The invention relates to biotechnology, namely to a medium for lyophilization of fungal strains of the genus Trichoderma and can be used for conservation and long-term storage of fungal strains. The medium, according to the invention, comprises, %: glucose - 7, Fe2ZnO4 nanoparticles - 0.0005 and skim milk - the rest. The result of the invention consists in increasing the viability of fungal strains after lyophilization and after storage in lyophilized state. The proposed protection medium (skimmed milk + 7% glucose + 5 mg /l nanoparticles Fe2ZnO4) for lyophilization of fungi of the genus Trichoderma contributes to the stimulation of their viability after lyophilization and keeping in lyophilized state by 5-14,7% compared to the control variant. Areas of application: Microbiology, Biotechnology. The research was carried out within the project 20.80009.7007.09, funded by NARD.*
***State of development: The implementation of process is carried out within the National Collection of Non-Pathogenic Microorganisms, and PhD thesis.***
***Contact: Sirbu Tamara, e-mail:*** *tfsirbu@gmail.com*
***Presentation link:*** *https://imb.md/en*

***35.***

***Title: MEDIUM FOR LYOPHILISATION OF FUNGAL STRAINS OF THE GENUS ASPERGILLUS.***
***Patent/project number: no. 1467 MD/2021.06.30.***
***Author/s: Sîrbu Tamara, Timuş Ion, Gorincioi Viorina, Țurcan Olga, Moldovan Cristina.***
***Institution: Public Institution Institute of Microbiology and Biotechnology, Ministry of Education and Research of the Republic of Moldova.***
***Category: A.***
***Description:*** *The invention relates to biotechnology, namely to a lyophilization medium of fungal strains of the genus Aspergillus which contains skimmed milk + 7% glucose +5 mg /l NP of Fe2O3 and can be used for the preservation and long-term storage of fungal strains. The invention relates to biotechnology, namely to a lyophilization medium of fungal strains of the genus Aspergillus which contains skimmed milk + 7% glucose +5 mg /l NP of Fe2O3 and can be used for the preservation and long-term storage of fungal strains. Areas of application: Microbiology, Biotechnology. The research was carried out within the project 20.80009.7007.09, funded by NARD.*
***State of development: The implementation of process is carried out within the National Collection of Non-Pathogenic Microorganisms, and PhD thesis.***
***Contact: Sirbu Tamara, e-mail:*** *tfsirbu@gmail.com*
***Presentation link:*** *https://imb.md/en*

***36.***

***Title: PROCESS AND ADSORBENT MATERIAL FOR ADSORPTION OF ORGANIC POLLUTANTS FROM AQUEOUS SOLUTIONS***
***Patent/project number: A00123/2022***

***Author/s: Roxana Ioana Brazdis, Radu Claudiu Fierascu, Anda Maria Baroi, Irina Fierascu, Toma Fistos***
***Institution: National Institute for Research & Development in Chemistry and Petrochemistry – ICECHIM Bucharest***
***Category: A***
***Description:*** *The present invention relates to an adsorbent material and to a process for obtaining it, used to reduce the level of organic pollutants in aqueous solutions, at ambient temperature and atmospheric pressure. The adsorbent obtained according to the invention eliminates the disadvantages of current approaches, in that it is presented in the form of a powder, having a specific surface area between 35-55 m2/g, with the crystallites size below 25 nm and the method of obtaining it is easily scalable to industrial scale. This work was supported by the INCDCP ICECHIM Bucharest 2019-2022 Core Program PN. 19.23–Chem-Ergent, Project No.19.23.03.01. It is also acknowledged the support of Ministry of Research, Innovation and Digitization through Program 1 - Development of the national research-development system, Subprogram 1.2-Institutional performance- Projects to finance excellence in RDI, Contract no. 15PFE/2021.*
***State of development: patent application, laboratory***
***Contact:*** *fierascu.radu@icechim.ro* ***Fierascu Radu Claudiu (Technical Manager)***
***Presentation link:*** *https://icechim.ro/en/*

***37.***

***Title: Process for Obtaining Asymmetric Polymer Membranes with Permanent Hydrophilicity Used in Water Ultrafiltration for the Pharmaceutical and Food Industry***
***Patent/project number: RO133608***
***Author/s: Nedeff Valentin, Sandu Andrei Victor, Nedeff Florin Marian, Sandu Ioan Gabriel, Barsan Narcis, Tătaru Laurențiu, Sandu Ion***
***Institution: Vasile Alecsandri University of Bacau***
***Category: A***
***Description:*** *The invention relates to a process for obtaining asymmetric polymeric membranes with permanent hydrophilicity, used in the ultrafiltration of water for the pharmaceutical and food industry. The process according to the invention consists in dispersing 0.3% of a mixture of silica nanoparticles and colloidal silver in a 98: 2 gravimetric ratio in a hydrophilic 1-methyl-2-pyrrolidone polymeric solvent, after When stirring, 30% polysulfone dispersed in polymeric solvent is added, mechanical stirring is continued at 240 rpm for 24 hours at room temperature, resulting in a homogeneous and stable dispersion, which is poured onto a nonwoven textile backing. yarns below 100 μ m, resulting in polymeric membranes with a thickness of 100 ... 200 μ m and an asymmetric stratigraphic profile of pore diameter.*
***State of development: laboratory/prototype***
***Contact:*** *euroinvent@yahoo.com*
***Presentation link:*** *http://www.afir.org.ro/*

**38.**

***Title: RecMine – Environmental footprint reduction through eco-friendly technologies of mine tailing recycling***
***Patent/project number: European project***
***Author/s: Petrică Vizureanu, Dumitru-Doru Burduhos-Nergis, Andrei Victor Sandu***
***Institution: Gheorghe Asachi Technical University of Iasi***
***Category: A***
***Description:*** *The aim of this project is the valorisation of high-volume mineral residues from mining and different industrial residues (such as coal combustion by-products (CCP) and demolition waste (DW)) for the development of (i) new geopolymers with low CO2 footprint, and (ii) advanced refractories, suitable for 3-D printing applications. This will be done through the development of two innovative processing techniques that will be able to make the mine tailings and the industrial wastes suitable for replacing the concrete based on Ordinary Portland Cement (OPC), reducing the requirements of primary raw materials, the waste generation and landfilling. It will be ensured that the developed materials (the geopolymers and the refractories) match the technical and environmental criteria for its use in steel industry or civil engineering applications and develop appropriate business models to secure profitability and sustainability.*
***State of development: laboratory/prototype***
***Contact:*** *euroinvent@yahoo.com*
***Presentation link:*** *http://www.afir.org.ro/*

**39.**

***Title: MECHANICAL DEVICE WITH ULTRASOUND FOR QUALITY CONTROL OF TREES***
***Patent: RO 00638 /2021***
***Author/s: PETRICEANU Constantin, PETRICEANU Alexandru Daniel, COSTOIU Mihnea Cosmin, SEMENESCU Augustin, GÎDIUȚĂ Ioana, DIACICOV Călin-Marian, CHIVU Oana Roxana***
***Institution: University POLITEHNICA Bucharest, ROMANIA, EU***
***Category: A***
***Description:*** *The invention relates to the creation of a control device capable of assessing the quality of tree trunks by a method which does not involve their damage. This is useful for identifying and deciding which trees are healthy and which are affected by various structural problems and need to be cut down. The mechanical ultrasonic device for controlling the quality of the standing shafts, according to the invention, consists of: impact head, active part of the impact head (changes after wear), drive unit (electric motor plus transmission mechanism), four acoustic sensors, sliding sensors, shaft strap, circumference adjustment mechanism, control circuit box and power supply, connectors, tablet with evaluation software, evaluation software.*

***State of development: Functional prototype***
***Contact: Professor Habil. Dr.eng.ec.math. Augustin SEMENESCU augustin.semenescu@upb.ro***
***Presentation link: https://upb.ro/en/***

**40.**

***Title: PROCESS FOR MONITORING STABILITY OF ECOLOGICAL DUMPS IN MINING AREAS AND IN URBAN AREAS***
***Patent number: OSIM A/00025/17.01.2017***
***Author/s: Remus DOBRA, Mircea RÎŞTEIU, Dragoş PĂSCULESCU***
***Institution: University of Petroşani***
***Category: A***
***Description:*** *The invention refers to a process for monitoring the stability of existing ecological depositories in mining, dump and landfill areas, as well as in urban areas, such as decanting ponds and landfills.*
***State of development: concept***
***Contact: pdragos_74@yahoo.com***
***Presentation link: https://www.upet.ro/en/***

**41.**

***Title: THE WONDERS OF LANTERN FISH***
***Patent number: High school student project***
***Author/s: ANDRE RERAT***
***Institution: HIGH SCHOOLER SPARK SCHOOL, TRANSYLVANIA COLLAGE CLUJ***
***Category: A***
***Description:*** *Raising awerness about the importancce of the lanternfish. Lanternfishes are small mesopelagic fish of the large family Myctophidae.*

*One of two families in the order Myctophiformes, the Myctophidae are represented by 246 species in 33 genera, and are found in oceans worldwide. False sea floors 90% of fish biomass is located in the deep sea. Lantern fish account for about 65% of deep sea fish biomass.*

*They are also the most diverse, widely distributed and populous vertebrate. This caused sonars to bounce off schools of lantern fish which created fake floors. This made maps of our oceans erroneous. Bioluminescence as the name suggests, lantern fish have photophores that help them camouflage, see prey and communicate.*

*They possess two kinds of photophores that can light up independently, allowing for more complex patterns. Importance not only are lanternfish important food for countless marine predators, but they also absorb more co2 than the Amazon rainforest. This makes lantern fish one of the most crucial animals in the world because of all the organisms that rely directly or indirectly on their immense numbers.*
***State of development: exploratory research***
***Contact: andre.rerat@spark.school +40745045263***
***Presentation link: https://spark.school/ https://w w.transylvania-college.ro/***

**42.**

***Title: SURROUND SENSING-BASED WATER WAVE DETECTOR FOR BUOY***
***Patent number: in process of patent registration***
***Author/s: Dr. Boon-Chin YEO, Prof. Dr. Way-Soong LIM, Poh-Wei LUI, Yan-Feng LAI***
***Institution: Multimedia University, Malaysia***
***Category: A***
***Description:*** *Reservoirs, dams, and lakes in Malaysia are important to provide water resources, generate hydroelectricity, and preserve biology diversity. Many illegal activities can happen around the areas such as illegal fishing, logging, swimming, wildlife crimes and illegal waste disposal into the water; and monitoring tasks can be challenging. Different water waves can be created from different activities. One of the solutions is to use the mobile floating device to monitor the activities on the water surface. Capturing the water waves will allow us to detect abnormal situations. The floating device can also allow the monitoring process to be done at the middle of the lakes, where there is no place to mount the camera traps. We have designed and filed a patent for a floating device to capture the water waves and water levels surrounding the device. The captured water levels surrounding the floating device can be represented on the xy-plane in the form of shape-shifting oval-shape curve. The amplitudes, the frequencies, and the propagation directions can be analyzed from the curve. Multiple floating devices will allow wave source detection. The data collected from the floating device can be sent to the workstation wirelessly for further analysis and different applications.*
***State of development: prototype***
***Contact:*** *info@tisias.org*
***Presentation link:*** *https://www.tisias.org/*

# B - Nanotechnology, Advanced materials, Metallurgy, Civil engineering

**1.**

***Title: Fabrication of a UV Photodetector Based on n-TiO2 /p-CuMnO2 Heterostructures***
***Patent/project number: PhD Thesis***
***Author/s: Mircea Nicolaescu[1,2], Viorel-Aurel Serban[1], Cornelia Bandas[2], Corina Orha[2], Carmen Lazău[2], Simona Căprărescu[3]***
***Institution: 1 University Politehnica of Timisoara; 2 National Institute for Research and Development in Electrochemistry and Condensed Matter Timisoara; 3 University Politehnica of Bucharest***
***Category: B***
***Description:*** *The heterojunction based on n-TiO2 nanolayer /p-CuMnO2 thin film was achieved using an efficient two-step synthesis process for the fabrication of a UV photodetector. The first step consisted of obtaining the TiO2 nanolayer, which was grown on titan foil by thermal oxidation (Ti-TiO2). The second step consisted of CuMnO2 thin film deposition onto the surface of Ti-TiO2 using the Doctor Blade method. Techniques such as X-ray diffraction, UV-VIS analysis, SEM, and AFM morphologies were used for the investigation of the structural and morphological characteristics of the as-synthesized heterostructures.*

*The Mott–Schottky analysis was performed in order to prove the n-TiO2/p-CuMnO2 junction. The I-V measurements of the n-TiO2 nanolayer/p-CuMnO2 thin film heterostructure confirm its diode characteristics under dark state, UV and visible illumination conditions. The obtained heterojunction, which is based on two types of semiconductors with different energy band structures, improves the separating results of charges, which is very important for high-performance UV photodetectors.*
***State of development: This research was funded by a grant of the Romanian Ministry of Research and Innovation UEFISCDI project code PN 19 22 04 01 TINSME contract number 40 N/2019; project code PN-III-P2- 2.1-PTE-2019-0394 with contract number 54 PTE/2020; project code PN-III-P2-2.1-PED-2019-4492 with contract number 441PED/2020***
***Contact:*** *mircea.nicolaescu@student.upt.ro*
***Presentation link:*** *https://www.upt.ro/ https://citt.upt.ro/en/*

**2.**

***Title: SANDWICH PANEL BASED ON HEMP SHIVES AND FIBERS, AND THE MODALITY OF OBTAINING IT***
***Patent/project number: Patent OSIM: RO133611 -B1/30.06.2021***
***Author/s: Raluca Iştoan, Daniela-Roxana Tămaş-Gavrea, Daniela Lucia Manea, Ovidiu Vasile***
***Institution: Technical University of Cluj-Napoca***
***Category: B***

***Description:*** *The invention relates to a sandwich panel based on hemp shives and fibers, and the method to obtain it, which has the applicability in the construction sector. The sandwich panel is designed with three layers: a low-density core defined by the hemp waste fibers with a cement binder and a thin skin-layer bonded to each side, prepared from hemp shives, and hydrated lime-cement binder. The panel is used as a partition element with significant acoustic and thermal properties, and it archive a part of sustainable development requirements. The panel was analyzed in four ways: (a) without perforations, (b) with perforations of 1 cm diameter and 10% degree of perforation, (c) with perforations of 1 cm diameter and 20% degree of perforation (d) with perforations of 1 cm diameter and 30% degree of perforation.*
*The physical characteristics of the sandwich panel are:*
*(a) without perforations: sound absorption coefficient* $a_{max}$ *= 0.56 at 350 Hz, thermal conductivity* $\lambda = 0.068$ *[W/mK], density* $\rho = 413$ *[kg/m3].*
*(b) with perforations: sound absorption coefficient a>0,80 on the range frequencies between 650 - 1080 Hz, with* $a_{max}$ *=0,97 (810 - 860 Hz)*
*(c) with perforations: sound absorption coefficient a>0,80 on the range frequencies between 970 - 1350 Hz, with* $a_{max}$ *=0,85 (1090 - 1200 Hz)*
*(d) with perforations: sound absorption coefficient a>0,80 on the range frequencies between 880 - 1740 Hz, with* $a_{max}$ *=0,95 (1140 - 1250 Hz)*
***State of development: prototype***
***Contact:*** *Liliana.Pop@staff.utcluj.ro*
***Presentation link:***
*https://research.utcluj.ro/tl_files/research/Research%20Domain/1_Civil%20Engineering/BURG_Manea.pdf*

***3.***

***Title: Eco- innovative concrete based on cement and recycled waste glass and pet (polyethylene terephthalate) for applications in construction "bestipet"***
***Patent/project number: Patent OSIM: RO133833 -B1/29.04.2021***
***Author/s: Ofelia-Cornelia Corbu, Henriette Szilagyi, Gabriel Pirgariu***
***Institution: Technical University of Cluj-Napoca***
***Category: B***
***Description:*** *The invention relates to the obtaining of a new eco-innovative, sustainable concrete, based on cement and recycled waste in the form of artificial glass aggregate and PET flakes (Polyethylene Terephthalate), as raw material, which successfully replace the non-renewable natural aggregates (waste involving high storage and storage costs). The eco-innovative concrete was made within the research-development-innovation project - "CHECKS OF INNOVATION" 266 CI / 2018 in order to develop the SMEs, where the beneficiary company, NEW NCR RECICLARE S.R.L. becomes the final recycler.*
*The beneficiary of the research having the main activity object: collection, recovery of the waste and concrete products manufacturing, obtained the Technical Approval no. 001SC-02/635-2019 for alveolar concrete blocks for the purpose of commercialization.*
***State of development: prototype***
***Contact:*** *Liliana.Pop@staff.utcluj.ro*
***Presentation link:*** *https://research.utcluj.ro/index.php/inginerie-civila.html*

**4.**

***Title: SOIL STABILIZATION WITH PLASTIC WASTE MATERIALS (PET)***
***Patent/project number: Innovative project***
***Author/s: Ana-Maria Trîmbiţaş (Urian), Nicoleta Maria Ilieş, Andor Csongor Nagy, Ovidiu Nemeş***
***Institution: Technical University of Cluj-Napoca***
***Category: B***
***Description:*** *Nowadays, the researchers are trying to find innovative solutions for the reuse of different types of wastes generated by living or by different industries. Wastes like tire shreds, glass fibers, polypropylene, polyester, polyethylene are mixed with soil in order to obtain an increase on the shear parameters.*

*The aim of this research is to observe the variation of the shear parameters for clay mixed with polyethylene terephthalate waste. To investigate the effects of polyethylene waste on the strength of the soil, a series of test have been performed on the mixture. The initial experimental results show that there is a significant improvement on the shear parameters. This increase is depending on the amount of waste plastic added to the clay.*
***State of development: prototype***
***Contact: Liliana.Pop@staff.utcluj.ro***
***Presentation link:***
***https://research.utcluj.ro/tl_files/research/Research%20Domain/Ingineria%20Materialelor/IngMed_DanViorel.pdf***

**5.**

***Title: INNOVATIVE USE OF SHEEP WOOL FOR OBTAINING NEW MATERIALS WITH SOUND-ABSORBING PROPERTIES***
***Patent/project number: Innovative project***
***Author/s: Simona Ioana Borlea (Mureşan), Ancuța-Elena Tiuc, Ovidiu Nemeş***
***Institution: Technical University of Cluj-Napoca***
***Category: B***
***Description:*** *The aim of this study is to obtain new materials with sound absorbing properties using the sheep's wool as raw material. Seven new materials were obtained by hot pressing (60 ÷ 80 °C and 0.05 ÷ 6 MPa) of wool fibers and one by cold pressing.*

*Results shown that by the simply hot pressing of the wool, a new product is obtained which can be processed and easily manipulated. The obtained materials have very good sound absorption properties with acoustic absorption coefficient values over 0.7 for the frequency range 800 ÷ 3150 Hz; the results prove that the sheep wool has a comparable sound absorption performance to that of mineral wool or recycled polyurethane foam.*

*Hot pressed materials have a much higher density than cold pressed materials. The density of materials made from hot pressed sheep's wool increases with increasing pressure.*
***State of development: prototype***
***Contact: Liliana.Pop@staff.utcluj.ro***

***Presentation link:***
***https://research.utcluj.ro/tl_files/research/Research%20Domain/Ingineria%20Materialelor/IngMed_DanViorel.pdf***

***6.***

***Title: STRENGTHENING THE BUILT HERITAGE WITH MODERN SOLUTIONS***
***Patent/project number: Innovative project***
***Author/s: Alpár-Sándor Kis***
***Institution: Technical University of Cluj-Napoca***
***Category: B***
***Description:*** *The history of building technology shows that before the classical mechanical theories, the construction of monumental buildings was based on empirical considerations, similarities with natural forms, intuition and centuries of building experience, older models of structures that performed well during their period of use, elementary geometrical and constructive rules and basic mechanical models.*
*The age of computers has opened up new horizons for the possibility of expanding the range of techniques and materials used to rehabilitate historic buildings. New experimental methods and numerical analysis calculations make it possible to solve complex problems that previously could not be dealt with, thus making it possible to develop modern techniques and materials for the rehabilitation of historic buildings.*
*Having strict legislative requirements to minimize the impact of the whole rehabilitation process on the historic monument status of buildings, due to the need to carry out complex works with short implementation deadlines imposed without the possibility of exceeding the allocated budget, modern alternative methods are highly sought after. The techniques, systems and materials for rehabilitation developed nowadays represent the future in the field as:*
- *They are non-invasive, allowing the possibility of preserving the original architectural and structural configuration of the building;*
- *They are versatile, so they can be adapted according to structural needs;*
- *They can be customized to each type of historical material;*
- *They do not increase the structure's own weight, thanks to their low weight;*

*They can be carried out quickly without costly equipment with low skilled personnel while causing minimal disturbance.*
***State of development: prototype***
***Contact:*** ***Liliana.Pop@staff.utcluj.ro***
***Presentation link:*** ***https://research.utcluj.ro/index.php/inginerie-civila.html***

***7.***

***Title: GEOPOLYMER FILLER IN RHDPE FOR 3D PRINTING FILAMENT***
***Patent/project number: US 8,337,612 B2 – Environment Friendly Composite Construction Materials PI 2014702066 – Nanocomposites with thermoplastic materials and fillers and method of preparation thereof***
***Author/s: Yusrina Mat Daud, Mohammad Firdaus Abu Hashim, Mohd Mustafa Al Bakri Abdullah, Mohamad Syahmie Mohd Rasidi, Meor Ahmad Faris Meor Ahmad Tajudin***

***Institution: UNIVERSITI MALAYSIA PERLIS***
***Category: B***
***Description:*** *"Green Kenaf Soundproof Wall Panel" is an innovative product which consists of fly ash-based geopolymer (reinforcing filler materials) in recycled High-Density Polyethylene (rHDPE). 3D printing concrete technology has progressed significantly in recent decades.*

*The primary benefits and possibilities of 3DP concrete are its capacity to create structures with minimum human intervention and a sufficiently short time. Although the procedure is still more costly than traditional structures, due to the additional structural stability concerns, 3DP concrete offers a clear cost-benefit when increasing automation or complexity is demanded.*

*Moreover, this innovation also helps in the contribution towards a greener world by sustaining the usage of renewable resources of fly ash-based geopolymer filler and recycled High Density Polyehtylene (rHDPE).*
***State of development: Research project***
***Contact:*** *yusrina@unimap.edu.my*
***Presentation link:*** *https://www.unimap.edu.my/index.php/en/*

*8.*

***Title: C-CALA (CO-COMBUSTION ASH LIGHTWEIGHT AGGREGATE)***
***Patent/project number: COPYRIGHT***
***Author/s: FARALISA SHAARUDIN, NORLIA MOHAMAD IBRAHIM, ROSHAZITA CHE AMAT, NUR LIZA RAHIM, SYAKIRAH MOHAMED, KHAIRUL NIZAR ISMAIL***
***Institution: UNIVERSITI MALAYSIA PERLIS***
***Category: B***
***Description:*** *This product focusses on the development of alternative construction material namely lightweight aggregate using waste materials from coal combustion. Even though gas remains the primary source of electricity generation, the use of coal is gaining attention widely.*

*As a result, an increasing in the demand for electricity which has resulted in increased production of coal ash. The combustion of 2.9 million metric tonnes of coal produces 1.2 million metric tonnes of coal ash. It can be summarized that the total use of the fuel mix for electricity production has been increasing annually, rising from 14% in 2008 to 16% in 2009, 22% in 2010, and 24% in 2011. This study was done to utilise co-combustion ash from coal as one of the materials use to produce lightweight aggregate (LWA) for concrete.*

*The LWA is produced by mixing foam, co-combustion ash and ordinary Portland cement and produced using cold-bonded pelletization technique. Although cement-based granulation process has not been study equally deeply, the feasibility of using cement and ash for the manufacturing of aggregate is undoubtfully worth of consideration. The cement-based aggregate is developed and studied so that it can be used to replace normal weight aggregate in the concrete.*
***State of development: RESEARCH PROJECT – PRODUCT***
***Contact:*** *norlia@unimap.edu.my*
***Presentation link:*** *https://www.unimap.edu.my/index.php/en/*

**9.**

***Title: SUSTAINABLE TERNARY BLENDED CEMENT USING MSWI BOTTOM ASH AND RICE HUSK ASH***
***Patent/project number: PATERN FILLING ID: PI2021004414***
***Author/s: NUR NABILAH ZARUDIN, ROSHAZITA BINTI CHE AMAT, DR. NORLIA BINTI MOHAMAD IBRAHIM, DR. NUR LIZA BINTI RAHIM, NUR ADILA ABDUL HALIM***
***Institution: UNIVERSITI MALAYSIA PERLIS***
***Category: B***
***Description:*** *Sustainable Ternary Blended Cement is another alternative for cement or finds a solution to reduce the cement usage in mortar. Rice husk ash (RHA) and municipal solid waste incineration bottom ash (MSWIBA) are using to replace a specific quantity of cement. The use of partial cement replacement such as pozzolanic material can improve the durability of the mortar produced. Municipal Solid Waste (MSW) bottom ash and rice husk ash have the ability of a commons cement in terms of its composition. Both raw materials are waste materials that are obtained abundantly in Malaysia. It can be described as an innovative inventory using simple and economically methods in concrete mix innovation. This environment-friendly product can reduce the construction cost spending on cement. This product can replace up to 15% of cement as binder materials in construction material.*
***State of development: RESEARCH PROJECT – PRODUCT***
***Contact:*** *roshazita@unimap.edu.my*
***Presentation link:*** *https://www.unimap.edu.my/index.php/en/*

**10.**

***Title: POROUS POLYLACTIC ACID (PLA) FILLED WITH MODIFIED CARBON BLACK FOR CONDUCTIVE MATERIAL APPLICATION***
***Patent/project number: Student Project***
***Author/s: Muhammad Afham Atha Rahim Anuar , Nur Atiqah Mohd Rahim, Mohamad Syahmie Mohamad Rasidi, Amira Mohd Nasib, Luqman Musa, Rozyanty Rahman, Mohammad Firdaus Abu Hashim, Yusrina Mat Daud***
***Institution: UNIVERSITI MALAYSIA PERLIS (UniMAP)***
***Category: B***
***Description:*** *Porous conductive polymer composites (CPCs) with functional additives attracted more and more attentions because of the low density and potentional functionality, where it allows electricity to travel through them. Metals, known for their high electrical conductivity, were the material for electrical improvement in the early stages. But soon enough, solutions providing better conductivity were required. This is where carbon came into play. Carbon based conductive materials offer potential solutions and novel ideas for further improvement of technology. High electrical conductivity, surface area, thermal conductivity, and desirable chemical properties of these products make them great candidates for the job.*
***State of development: prototype***
***Contact:*** *Syahmie@unimap.edu.my*
***Presentation link:*** *https://www.unimap.edu.my/index.php/en/*

**11.**

***Title: SURF-PREP OPTIMIZES OXIDATION PERFORMANCE***
***Patent/project number: FRGS/1/2020/TK0/UNIMAP/02/43***
***Author/s: Noraziana Parimin, Esah Hamzah, Nur Farhana Hayazi, Nor Azwin Ahad, Farah Farhana Zainal, Muhammad Firdaus Mohd Nazeri, Juyana A Wahab***
***Institution: Universiti Malaysia Perlis, Malaysia***
***Category: B***
***Description:*** *Surface preparation (Surf-Prep) using a grinding process creates a subsurface area of refine grains on the alloy surface to induce rapid diffusion in the initial oxidation process to produce a protective oxide scale on Fe-Ni-Cr alloy.*
***State of development: research project***
***Contact:*** *noraziana@unimap.edu.my*
***Presentation link:*** *https://www.unimap.edu.my/index.php/en/*

**12.**

***Title: NEW FUNDAMENTAL METHOD TO UNLOCK THE METASTABLE PHASES DURING THE DEHYDROGENATION OF TiH2 POWDER***
***Patent/project number: PhD thesis***
***Author/s: Nur Farhana Hayazi, Yu Wang, Sammy Lap Ip Chan, Mazlee Md. Noor, Noraziana Parimin, Farah Farhana Zainal***
***Institution: Universiti Malaysia Perlis, Malaysia***
***Category: B***
***Description:*** *This method of unlocking the metastable phases during the dehydrogenation of TiH2 powder, combined the application of thermal analysis and in-situ XRD with Rietveld refinement analysis.*

*Novelties:*

- ❑ *Able to identify some transition phases during the dehydrogenation of TiH2 by using the in-situ high temperature XRD*
- ❑ *A detailed mechanism of dehydrogenation of TiH2 with the full sequence of the phase transformation of δ-TiH2 to a-Ti is: $\delta \rightarrow \delta' \rightarrow \beta' \rightarrow \beta \rightarrow a' \rightarrow a$*
- ❑ *Rietveld refinement results have proven the existence of two δ, two β and two a phases, each of the same phase only varies in lattice parameters.*
- ❑ *Successfully differentiating the changes in lattice parameters owning to thermal expansion and phase changes when combined with Rietveld refinement analysis.*

***State of development: Method***
***Contact:*** *farhanahayazi@unimap.edu.my*
***Presentation link:*** *https://www.unimap.edu.my/index.php/en/*

**13.**

***Title: ZIRCONIA-KAOLIN GEOPOLYMER***
***Patent/project number: PhD thesis***
***Author/s: Nurul Aida Mohd Mortar, Mohd Mustafa Abdullah, Rafiza Abdul Razak, Muhammad Faheem Tahir, Rosnita Mohamed, Muhammad Izzul Hafiz and Irfan Arif Junainep***
***Institution: Faculty of Chemical Engineering and Technology, Universiti Malaysia Perlis, Faculty of Civil Engineering and Technology, Universiti Malaysia Perlis***
***Category: B***
***Description:*** *This research discusses how to enhance the compressive strength of kaolin-based geopolymers by adjusting the liquid ratio and percentage of zirconia addition. The sodium hydroxide and sodium silicate ratio is 0.20, 0.24, 0.28 and 0.32 and percentage addiiton of zirconia is 1%, 3%, 5% and 7%, respectively. The concentration of sodium hydroxide has a noticeable influence on the compressive strength of geopolymers. Futher, the strength and toughness properties of kaolin geopolymer will be impart by adding the zirconia as reinforcement. Zirconia- kaolin geopolymer were investigated using ABAQUS software to simulate and validate the compressive stress distribution from experimental.*
*Objective*
- *To optimize the compressive strength of a kaolin-based geopolymer by varying the sodium hydroxide and sodium silicate ratio at a concentration of 8M NaOH.*
- *To determine properties of the kaolin geopolymer by adding zirconla at 0,1,3,5 & 7 wt %*
- *To examine the compressive stress distribution of zirconia added to kaolin geopolymer by using ABAQUS software.*

***State of development: scientific paper***
***Contact:*** *nurulaida@unimap.edu.my*
***Presentation link:*** *https://www.unimap.edu.my/index.php/en/*

**14.**

***Title: HYBRID ECO-TRUCK PANEL***
***Patent/project number: US 8,337,612 B2 – Environment Friendly Composite Construction Materials; PI 2014702066 – Nanocomposites with thermoplastic materials and fillers and method of preparation thereof***
***Author/s: MUHAMAD IKMAL RAMLI, MOHAMMAD FIRDAUS ABU HASHIM, YUSRINA MAT DAUD, MOHD MUSTAFA ALBAKRI ABDULLAH, MEOR AHMAD FARIS MEOR AHMAD TAJUDIN, MOHAMAD SYAHMIE MOHAMAD RASIDI***
***Institution: UNIVERSITI MALAYSIA PERLIS***
***Category: B***
***Description:*** *Hybrid Eco-Truck Panel: A Novel Fly Ash-Based Geopolymer Filler mixed with Kenaf Fiber offers renewable of geopolymeric materials as filler in plastic applications for residential, commercial and industrial structures. Cargo panel structures in trucks and trailers are conventionally constructed largely of wood or steel. Conventional wooden truck cargo panel is normally manufactured with heavy hardwoods such as oak, maple, birch, beech, etc. Hardwoods offer several advantages such as high strength, stiffness, shock resistance, slip resistance and wear resistance. The use of steel as a truck cargo is due to the high*

*strength of the material. But, as with wood, steel is heavy which results in less efficiency and high fuel costs for the vehicle. Further, steel is susceptible to corrosive attack when exposed to fresh water, salt water, oxygen, and other environmental elements such as acid rain, road salts, and other chemicals. Promoted as low-cost and low-weight (low-density) alternative material, kenaf has signaled the start of an "eco" automotive industry with enormous potential. The advantages of kenaf fiber and fly ash-based geopolymer filler as reinforcement in composite include low weight, high availability, ease of processing, environmentally friendly and high performance. This hybrid features an advanced bio-composite with a combination of fly ash-based geopolymer filler and kenaf fiber which offer high strength and rigidity with lighter mass, excellent processing and fabricating properties, as well as lower energy consumption.*
***State of development: PROTOTYPE***
***Contact:*** *firdaushashim@unimap.edu.my*
***Presentation link:*** *https://www.unimap.edu.my/index.php/en/*

***15.***

***Title: GEO-RUBBSAN WALL PANEL***
***Patent/project number: research project***
***Author/s: RESHIKESAN A/L RAVI, AHMAD AZREM AZMI, ROMISUHANI AHMAD, CHE MOHD RUZAIDI GHAZALI, MOSLIH AMER SALIH, LIYANA AHMAD SOFRI (UniMAP, ATU & UMT)***
***Institution: UNIVERSITY MALAYSIA PERLIS***
***Category: B***
***Description:*** *Composite sandwich panels have gradually become more popular due to their typical benefits including strength, weight, ease of handling, durability, versatility, thermal and acoustic properties.Sandwich panels are made of two materials that are relatively weak in their separated state, but are improved when they are constructed together in a sandwich panel. CRC Wall sandwich wall panels are made of two fibre reinforced cement facing sheets, on either sides of a lightweight geopolymer mortar core. The core is made from a mix of fly ash, binders and silicaceous & crumb waste EPDM rubber from gasket. These panels are primarily used as walling material but can also be used as floor and roof panels. These are non-load bearing panels to be used with structural support frame only.*
***State of development: PROTOTYPE***
***Contact:*** *firdaushashim@unimap.edu.my*
***Presentation link:*** *https://www.unimap.edu.my/index.php/en/*

***16.***

***Title: MANUFACTURING PROCESS AND CLADDING ELEMENTS FROM ALKALI-ACTIVATED GEOPOLYMER MICROCONCRETE, WITHOUT CEMENT CONTENT***
***Patent/project number: Pattent application No. A/00481 from 09.08.2022***
***Author/s: Adrian Victor LĂZĂRESCU, Bradut Alexandru IONESCU, Vasilica VASILE, Andreea Cristina HEGYI***
***Institution: NIRD URBAN-INCERC Cluj-Napoca Branch***
***Category: B***

***Description***: *The invention presents a method for producing cladding elements from alkali-activated geopolymer concrete, using fly ash as raw. Elements produced by this process are intended for use on walls or vertical elements of buildings. Cladding elements produced are intended for use in finishing work / protection of walls or other inclined or vertical elements of constructions.*
*Claim 1: Process of producing.*
*Claim 2: Alkali-activated geopolymer concrete, no cement content, dispersed reinforcement with metal fibers.*
*Claim 3: Cladding elements from alkali-activated geopolymer microconcrete, without cement content.*
***State of development: Protoype***
***Contact:*** *adrian.lazarescu@incerc-cluj.ro*
***Presentation link:*** *https://youtu.be/O-SouK67x1o*

***17.***

***Title: UNCONVENTIONAL TEXTILE MATERIAL MADE ON THE BASIS OF SHEEP WOOL, FIBERS FROM RECYCLED PVC WASTE, RECYCLED TEXTILE WASTE AND VEGETABLE FIBERS, INTENDED FOR BUILDING INSULATION AND ITS MANUFACTURING PROCESS***
***Patent/project number: Pattent application No. A/00570 from 19.09.2022***
***Author/s: Andreea Cristina HEGYI, Cezar Florin BULACU, Adrian-Victor LĂZĂRESCU, Brăduț Alexandru IONESCU, Elvira GREBENIȘAN, Gabriela Adela CĂLĂTAN, Carmen Silvia DICO, Mircea-Iosif MIRCEA, Cristian PETCU, Tudor Panfil TOADER, Carmen Teodora FLOREAN, Mihail CHIRA, Adriana SANDA***
***Institution: NIRD URBAN-INCERC Cluj-Napoca Branch / MINET S.A.***
***Category: B***
***Description:*** *The patent application relates to the production of a composite non-woven textile material based on sheep wool, recycled PET fibres, fibres from recycled textile waste and fibres of a vegetable nature, intended for building insulation. The advantages are: the expansion of the possibilities of recycling waste and the use of sheep wool, the efficiency in thermal insulation and the positive impact on the quality of the air in the interior space through the hygroscopic character and the ability to reduce the concentration of formaldehyde, specific to the sheep wool thread.*
***State of development: Protoype***
***Contact:*** *andreea.hegyi@incerc-cluj.ro*
***Presentation link:*** *https://youtu.be/_iPrZ0JQ5Cs*

***18.***

***Title: ADDRESSING ELECTROCATALYTIC ACTIVITY OF METAL-SUBSTITUTED LANTHANUM MANGANITE FOR THE HYDROGEN EVOLUTION REACTION***
***Patent/project number: Surfaces and Interfaces, SURFIN-S-22-03882, 2022***
***Author/s: Paula Sfirloaga, Bogdan-Ovidiu Taranu, Maria Poienar, Paulina Vlazan***
***Institution: National Institute for Research and Development in Electrochemistry and Condensed Matter, Timisoara***

***Category: B***
***Description:*** *The HER electrocatalytic activity of a series of electrodes modified with compositions containing the LMO, LMO-Ca and LMO-Pd perovskite materials was studied in alkaline medium, and the experimental data revealed that the electrode manufactured using the suspension obtained by adding 2 mg LMO-Pd, 1 mg Carbon Black and 10 µL Nafion solution in 0.5 mL ethanol was the most performant.*
***State of development: scientific paper.***
***Contact:*** *paulasfirloaga@gmail.com*
***Presentation link:*** *https://incemc.ro/en/*

***19.***

***Title: ADVANCED TECHNOLOGIES FOR HIGH SELECTIVITY DETECTION OF ORGANOPHOSPHATE - NERVE AGENT SIMULANTS IN SOCIETAL SECURITY APPLICATIONS***
***Project number: 683PED/2022***
***Author/s: Paula Sfirloaga***
***Institution: National Institute for Research and Development in Electrochemistry and Condensed Matter, Timisoara***
***Category: B***
***Description:*** *The aim of the WAsSENS project is development, testing and validation of technology in the laboratory namely, an SH-SAW sensor, using undoped and Co or Sn doped ABO3 perovskite ceramics materials, obtained through low cost and environmentally friendly processes, for detection of DMMP - the stimulant nerve agent sarin. This project aims to develop concepts at micro/nano scale and new functional materials to demonstrate their integration on a piezoelectric substrate in a miniaturized, low cost, high selectivity chemical sensor based on shear horizontal surface acoustic wave device. The sensor is basically composed by a material able to detect changes in the medium of contaminants (sensitive material-based on perovskite type compounds) and a transducer to translate this change into a quantifiable signal. Their production cost is low they can be mass–produced by micro-nano technologies.*
***State of development: research project.***
***Contact:*** *paulasfirloaga@gmail.com*
***Presentation link:*** *https://incemc.ro/en/*

***20.***

***Title: INVESTIGATION OF CATALYTIC AND PHOTOCATALYTIC DEGRADATION OF METHYL ORANGE USING DOPED LaMnO3 COMPOUNDS***
***Patent/project number: Processes - 2044860, 2022***
***Author/s: Paula Sfirloaga, Madalina-Gabriela Ivanovici, Catalin Ianasi, Maria Poienar, Paulina Vlazan***
***Institution: National Institute for Research and Development in Electrochemistry and Condensed Matter, Timisoara***
***Category: B***

***Description:*** *The kinetics of catalytic reactions carried out for the different values of the pH were studied based on the kinetics model of zero-, first- and second- order reaction. Under artificial solar irradiation, the degradation rate reached 94.7% for the undoped LaMnO3 and close values (84.5%, 88%, and 86%) for Y, Pd or Ag doped LaMnO3 samples.*
***State of development: scientific paper.***
***Contact:*** *paulasfirloaga@gmail.com*
***Presentation link:*** *https://incemc.ro/en/*

**21.**

***Title: STRUCTURAL AND ELECTROCHEMICAL STUDIES OF REED FROM THE DANUBE IN ORDER TO OBTAIN GREEN ENERGY***
***Patent/project number: 1PS / 09.11.2021***
***Author/s: I. Balcu, A. C. Macarie, I. Taranu, V. Gherman, P. Sfirloaga***
***Institution: National Institute for Research and Development in Electrochemistry and Condensed Matter, Timisoara***
***Category: B***
***Description:*** *In this study, we present complete research regarding the structural and electrochemical studies regarding the reed from Danube. Studies on the production of biohydrogen have focused on the biophotolysis of water using algae and cyanobacteria, the photo-decomposition of organic compounds by photosynthetic bacteria and the fermentation in the dark of organic compounds with anaerobic bacteria.*
***State of development: research project***
***Contact:*** *ionel_balcu@yahoo.com*
***Presentation link:*** *https://incemc.ro/en/*

**22.**

***Title: IN-SITU DEPOSITION PROCESS OF rGO FILMS ON Ti-TiO2 SUPPORT BY MICROWAVE-ASSISTED HYDROTHERMAL METHOD***
***Patent/project number: Registered patent OSIM A/00482/09.08.2022.***
***Author/s: Bandas Cornelia, Lazau Carmen, Nicolaescu Mircea, Orha Corina***
***Institution: National Institute of Research and Development for Electrochemistry and Condensed Matter Timisoara***
***Category: B***
***Description:*** *The invention refers to the development of in-situ deposition process of reduced graphene oxide (rGO) films on a titanium-titanium dioxide (Ti-TiO2) support, carried out in two steps: the first step involves growing of the TiO2 layer directly on the titanium foil through thermal oxidation (Ti-TiO2 support), and the second step refers to the in-situ deposition of the rGO film by the microwave-assisted hydrothermal method, obtaining the Ti-TiO2-rGO electrode structure. An innovative in-situ deposition of rGO approach was to synthesize Ti-TiO2-rGO composite structures on Ti foil through a one-step microwave-assisted hydrothermal process. The microwave-assisted hydrothermal method for obtaining composite structures has proved to be feasible and easy to use for the development of Ti-TiO2-rGO*

*composite structures. SEM analysis showed an oriented growth, clearly and defined of the Ti-TiO2 layers, and the rGO films were successfully deposited on the Ti-TiO2 layers.*
***State of development: Concept***
***Contact:*** *cornelia.bandas@gmail.com*
***Presentation link:*** *https://incemc.ro/en/*

**23.**

***Title: CONCEPT FOR DEVELOPMENT OF LOW COST SILICONE RUBBER - POLYMER MIXED WITH PEROVSKITE MATERIALS FOR ENHANCED DIELECTRIC PROPERTIES***
***Project number: PN 19 22 04 01, within PNCDI***
***Author/s: Cristian Căşuţ, Daniel Ursu, Marinela Miclău, Iosif Mălăescu***
***Institution: National Institute of Research and Development for Electrochemistry and Condensed Matter***
***Category: B***
***Description:*** *We present a manufacturing concept of a new composite obtained by mixing a perovskite with silicone rubber. Composites are of interest for different applications, such as the design of flexible electronic devices or for dielectric energy storage. Recent literature reports on silicone rubber composites mixed with ferrofluids and aluminum nanoparticles present a potential to make flexible materials with good electric properties. Because of the excellent dielectric properties of many perovskites, we are going to study which material should be used in this kind of composites and the concentrations at which the materials are the most efficient.*
***State of development: PhD thesis***
***Contact:*** *cristian.casut95@e-uvt.ro*
***Presentation link:*** *https://incemc.ro/en/*

**24.**

***Title: DEVELOPMENT OF SELF-POWERED PHOTODETECTOR BASED ON TRANSPARENT FTO/n-TiO2/p-CuMnO2 THIN FILMS***
***Patent/project number: A/00298/02.06.2022***
***Author/s: Nicolaescu Mircea, Lazau, Carmen, Bandas Cornelia, Orha Corina, Poienar Maria***
***Institution: National Institute of Research and Development for Electrochemistry and Condensed Matter***
***Category: B***
***Description:*** *The invention refers to the development of a self-powered photodetector for ultraviolet radiation detection, The transparent self-powered sensor based on FTO-TiO2-CuMnO2 is made by the following components: the sensor support is fluorine-doped tin oxide glass (FTO), thin films of TiO2, the "n" component of the heterostructure, and thin films of CuMnO2, the " p" component of the heterostructure. The electrical measurements of the sensitivity of the sensors demonstrated the photosensitive character of the n-p junction in the -1V, +1V range, both in UV light irradiation and in the dark. Moreover, the property of the self-powered sensor was demonstrated by performing measurements at 0V. Thus, it was observed that under the action of UV irradiation, a self- powered current was generated.*

***State of development: Concept***
***Contact: nicolaescu.mircea13@yahoo.com***
***Presentation link: https://incemc.ro/en/***

***25.***

***Title: RECYCLED High-Density Polyethylene (HDPE) AS AN ADDITIONAL BINDER IN POROUS ASPHALT PAVEMENT***
***Patent/project number: research project***
***Author/s: Divya A/P Ganesan, Liyana Ahmad Sofri, Mohd Mustafa Al Bakri Abdullah, Muhammad Faheem Mohd Tahir & Ahmad Faizal Mansor***
***Institution: UNIVERSITI MALAYSIA PERLIS***
***Category: B***
***Description:*** *Nowadays, numerous previous studies showed using recycled high-density polyethylene (HDPE) in porous asphalt road pavement construction. As a result, recycled HDPE plastic waste was utilised as an additional binder material to enhance the asphalt binder. The main purpose of this study is to look into the stability of modified HDPE porous asphalt samples and evaluate the optimum percentage of HDPE plastic waste from 3%, 6% and 9%. At 3% of HDPE plastic addition has improved the stability of porous asphalt specimens. The improvement about 73.71% higher than standard porous asphalt. Nowadays, numerous previous studies showed using recycled high-density polyethylene (HDPE) in porous asphalt road pavement construction. As a result, recycled HDPE plastic waste was utilised as an additional binder material to enhance the asphalt binder. The main purpose of this study is to look into the stability of modified HDPE porous asphalt samples and evaluate the optimum percentage of HDPE plastic waste from 3%, 6% and 9%. At 3% of HDPE plastic addition has improved the stability of porous asphalt specimens. The improvement about 73.71% higher than standard porous asphalt. Adding 3% shredded HDPE plastic into asphalt mixes enhances its performance and increases stability by 73.36%. Overall,3% HDPE porous asphalt was satisfied the Marshall Parameters compared to 6% and 9% of HDPE plastic waste addition to the mixtures. Help to reduce landfills and environment pollution by reusing HDPE plastic waste into road pavement construction.*
***State of development: prototype***
***Contact: liyanasofri@unimap.edu.my***
***Presentation link: https://www.unimap.edu.my/index.php/en/***

***26.***

***Title: LIGHTWEIGHT NEPHELINE BASED CERAMIC***
***Patent/project number: PI2021004551***
***Author/s: Romisuhani Ahmad, Mohd Mustafa Al Bakri Abdullah, Wan Mastura Wan Ibrahim, Azil Irfan Fikri Ahmad Fikri, Muhammad Irfan Mohamad Idris, Loo Boon Siang, Wan Hasnida Wan Saimi***
***Institution: Universiti Malaysia Perlis***
***Category: B***

***Description:*** *The diverse applications for advanced ceramic have been developed to continue growing at a reasonable rate with the processing and economical tolerance. To feature the required properties, the fabrication of conventional ceramics needs a long heat treatment up to 10 hours with the high sintering temperature up to 1800 °C. The use of geopolymer method is an alternate way in producing ceramic materials since the amorphous to semi-crystalline behavior of geopolymer will transforms into crystalline (nepheline) phases upon sintering. The unique composition of the geopolymer system with the help of geopolymerization reaction will improve the crystallization process as well as reducing the sintering temperature required. The homogeneous of the geopolymer system will influence the structural rearrangement during the phase change hence promote the nucleation and densification of the geopolymer. Besides, the higher content of silica oxide deviating from nepheline (NaAlSiO4) compositions will also facilitate the densification process and provide the system with self-fluxing properties.*
***State of development: student project***
***Contact:*** *romisuhani@unimap.edu.my*
***Presentation link:*** *https://www.unimap.edu.my/index.php/en/*

***27.***

***Title: SURFACE HARDening and HIGHLY WEAR-RESISTANT NANOCOMPOSITE COATtings FOR WOODWORKING TOOLS***
***Project number: COFUND-M-ERANET-3-HardCoat-2 (312/2022)***
***Author/s: Spiridon Dragomir, Diana M.Vranceanu, Claudia P.Dragomir***
***Institution: DRUGON INTERNATIONAL SRL***
***Category: B***
***Description:*** *Through this project the development in surface modification of cutting tools used in wood industry as well as the optimization of methodologies for investigation of mechanical, physico-chemical, surface and interfacial properties like wear and corrosion performance of this materials is intended. One objective of this research is the development of a variety of new super-/hard nanocomposite coatings based cutting insert, using Cr, Fe, Ti, or W based nanocomposites, with high hardness, good adhesion to substrate, low internal stress, resistance against wear, corrosion and oxidation, low friction coefficient, high fracture toughness. The coatings are specially designed to be used as protective coatings against wear for parts and tools subjected to severe working conditions for industrial woodworking.*
***State of development: prototypes***
***Contact:*** *drugoninternational@gmail.com*
***Presentation link:*** *https://www.drugon.ro/*

***28.***

***Title: NANOSTRUCTURED THIN FILMS BASED ON CARBO-NITRIDES IF TRANSITION METALS WITH SILICON ADDITIONS RESISTANT TO WEAR***
***Patent: A00605/04.10.2022***
***Author/s: Spiridon Dragomir[1], Anca C.Parau[2], Diana M.Vranceanu[1], Lidia R. Constantin[2], Claudia P.Dragomir[1], Alina Vladescu[2]***

***Institution: 1. Drugon International SRL; 2. National Institute of RD for Optoelectronics INOE2000***
***Category: B***
***Description:*** *The invention relates to preparation of nanostructured thin films based on carbo-nitrides consisted in one or more of transition metals with Si additions prepared by cathodic arc evaporation method used as protective films of cutting tools which ran under wear harsh regime by abrasion, erosion, and corrosion used in wood machining and cutting. Materials consist in complex carbo-nitrides based on Cr, Fe, Ti and W as base metal with elemental concentrations of min. 30 at.%, and max. of 30 at.% of C or N, and Si ranged from 2 to 12 at.%.*
***State of development: prototypes***
***Contact: Alina Vladescu, alinava@inoe.ro, 021.457.57.59***
***Presentation link:*** *https://www.inoe.ro/en/*

***29.***

***Title: INNOVATIVE STRATEGIES FOR BIOACTIVE/ANTIBACTERIAL ADVANCED PROSTHESES***
***Patent: ERANET-M-ISIDE-1-171/01.07.2020***
***Author/s: Alina Vladescu, Catalin Vitelaru, Anca C.Parau, Iulian Pana, Mihaela Dinu, Adrian Kiss, Lidia R.Constantin***
***Institution: National Institute of RD for Optoelectronics INOE2000***
***Category: B***
***Description:*** *The project relates to a possibility to reduce the degradation rate of Mg alloys used for the maxillofacial surgery by coatings with thin films-based hydroxyapatite prepared by RF magnetron sputtering. The coatings exhibit a thickness ranged from 250 nm to 300 nm nm, being deposited up to 400º C. These coatings resist to corrosive attack of SBF, DMEM and PBS at 37ºC, having a high protective efficient in these corrosive media (min 82%).*

*The crystalline HAp coating can be obtained at deposition temperatures higher than 200 ◦C, while the amorphous structure can be obtained at temperature in the RT - 100 ◦C. The elements of the coatings were uniformly distributed on the whole investigated surfaces, indicating the formation of homogenous coatings. Also, the Ca/P ratio decreased by increasing the deposition temperature, whatever the substrate. RF magnetron sputtering method is versatile and suitable for obtaining hydroxyapatite coatings. The hydroxyapatite coatings regardless of the deposition temperatures are uniform and they are covering the entire surface of the substrate.*

*The corrosion resistance in SBF of the uncoated Mg alloy could be improved by HAp coatings: all HAp coatings showed a corrosion behaviour better than the uncoated Mg alloy. The best corrosion behaviour was showed by the sample deposited at 200 ◦C, which was characterised by the roughest surface and by the closest Ca/P ratio to the stoichiometric one.*
***State of development: experimental models***
***Contact: Alina Vladescu*** *alinava@inoe.ro* ***021.457.57.59***
***Presentation link:*** *https://iside.inoe.ro*

**30.**

***Title: TRIPOV-TEC (Triple Biopore Paving Technology): EFFORT TO REDUCE FLOOD DISASTERS WITH COMBINATION OF INFILTRATION WELLS AND ARTIFICIAL FLOOD DETECTORS***
***Project number: INOV/REV/02.09.2022/11/IKH/KIRSMANDAPML/INT***
***Author/s: Litaussi'il Arzaq, Nadhifah Yasmin, Sulis Suryani, Muhammad Bintang Pradith Tama Sukma, and Salsa Aulia Rossyana.***
***Institution: SMA Negeri 2 Pemalang, Indonesia***
***Category: B***
***Description:*** *Tripov-Tec (Triple Biopore Paving Technology) is a technology as an effort to minimize flood disasters combined with infiltration wells. The new innovation in using Tripov-Tec that we made is the addition of an artificial flood detector that uses a turn signal as a marker so that its operation will be easier and more efficient.*

*Tripov-Tec has a simple shape and is easy to make. The use of perforated paralon makes Tripov-Tec work in absorbing water into the soil more effectively. The addition of a turn signal as a detection tool also helps in flood disaster mitigation efforts. The advantage of this artificial flood detector is that it uses a battery that utilizes solar power, namely sunlight, so there is no need to replace it regularly.*

*When it rains, water will enter the holes in the Tripov-Tec and then be absorbed by the soil through the holes in the paralon. If the soil is saturated, the water in the soil will rise and hit the cable on the paralon. The cable that is exposed to water will channel an electric current that can turn on the flood detection light as a sign that the infiltration well is also full.*
***State of development: Student Project***
***Contact: 0817-7091-4129***
***Presentation link:*** *https://youtu.be/8FdHFm-0jck*

**31.**

***Title: PHOTOSENSITIVE ORGANIC POLYMER MATERIAL***
***Patent/project number: Patent application no. a 2021 0068/2021.10.06***
***Author/s: Ion LUNGU, Stefan ROBU, Tamara POTLOG, Pavel TIULEANU, Petru BULMAGA***
***Institution: Moldova State University***
***Category: B***
***Description:*** *The essence of this invention consists in the synthesis of a photosensitive organic polymer material consisting from copolymers of N-vinylcarbazole:1-octene and acryloyl chloride (N-VC: OC-1: Cl-AC) in that additionally are grafted zinc phthalocyanine by Friedel-Craftz reaction with a content of 5-15 mol%. This new photosensitive material is easily soluble in organic solvents and has a good yield of 70 -72%. The thin films of this photosensitive organic polymeric material possess photosensitivity in the visible and near infrared spectral range $\lambda$ = 300-800 nm.*
***State of development: Research project.***
***Contact: Ion LUNGU, E-mail:*** *ionlungu.usm@gmail.com*
***Presentation link:*** *https://usm.md/?lang=en*

**32.**

***Title: IMPROVED METHOD FOR PRODUCING ZnO:Al CERAMICS***
***Patent/project number: Patent application no. s 2022 0027/2022.04.13***
***Author/s: Gleb COLIBABA, Dumitru RUSNAC***
***Institution: Moldova State University***
***Category: B***
***Description:*** *An alternative technology for producing ZnO:Al ceramic targets using HCl - based chemical vapour transport has been proposed.*

*The advantages are the following: (i) fast solubility of aluminium oxide at low sintering temperature (1050 °C); (ii) cost-effective materials (Al powder can be used as a dopant); (iii) possibility of multiple resintering; (iv) uniform doping and high conductivity of about 102 (Ω·cm); (v) additional Cl impurity and Zn excess in ceramic targets contribute to a better incorporation of Al impurity into magnetron thin films, increasing the mobility and concentration of charge carriers in these films.*
***State of development: Laborator.***
***Contact: E-mail: rusnacdumitru7@gmail.com / tel.: + 373 67151156***
***Presentation link: https://usm.md/?lang=en***

**33.**

***Title: INSTALLATION USED FOR CLEANING A SEGMENT FROM A SECTION OF A COLLECTOR PIPE OF DOMESTIC WASTEWATER***
***Patent/Project number: A / 00701 / 19.11.2021***
***Author/s: Pavel Ştefan, Ungureanu Daniel-Viorel, Dobrin Emilia, Bînzar Alexandru***
***Institution: Politehnica University of Timişoara***
***Category: B***
***Description:*** *The invention is related to an installation for unclogging a segment of a section of a collector pipe of the internal network of domestic wastewater.*

*The technical issue of the invention consists in the realization of an autonomous installation with independent or remote operation through a wireless internet connection that unclogs a segment of the collecting pipe at the time of clogging and/or at pre-programmed at different time intervals.*
*The invention has the following advantages:*
- *Autonomous functioning;*
- *The posibility to monitor the installation through wireless internect connection;*
- *The instalation does not use any chemical substances that may harm the environment;*
- *The possibility of scheduling the operation of the installation at different time intervals, in order to prevent the formation of pathogens in the domestic wastewater pipeline;*
- *Higher energetic efficiency through a reduced water consumption and electrical energy;*

***State of development: prototype***
***Contact: pavelstefanel@gmail.com***
***Presentation link: https://www.upt.ro/ https://citt.upt.ro/en/***

**34.**

***Title: PENCIL GRAPHITE ELECTRODES DECORATED WITH PLATINUM NANOPARTICLES AS EFFICIENT ELECTROCATALYSTS FOR HYDROGEN EVOLUTION REACTION***

***Patent/Project number: Research project – Diploma work***

***Author/s: Lorena-Cristina Balint, Iosif Hulka, Andrea Kellenberger***

***Institution: Politehnica University of Timişoara***

***Category: B***

***Description:*** *Pencil graphite (PG) leads have been decorated with Pt nanoparticles (NPs) deposited by an electrochemical method to obtain very efficient electrodes for hydrogen production. PG is an affordable carbon-based support, highly available and very cost-effective. The main challenge for developing Pt electrocatalysts is to achieve as low as possible catalyst loading, while still preserving the electrocatalytic properties. This can be realized by using suitable deposition methods, such as pulsed current electrodeposition, which enables the formation of NPs with a narrow size distribution, highly dispersed on the PG support. The Pt-PG electrodes can be applied for hydrogen production, with efficiencies similar to that of Pt. The advantages of Pt-PG electrodes refer to very short deposition time (120 s) and the use of very low Pt loadings (50 µg cm-2).*


*Fig.1. SEM micrograph of Pt NPs deposited on PG (left) and performance of Pt-PG electrodes as compared to Pt (right).*

***State of development: prototype***

***Contact:*** *andrea.kellenberger@upt.ro*

***Presentation link:*** *https://www.upt.ro/ https://citt.upt.ro/en/*

**35.**

***Title: DEVELOPMENT OF NON–STEEL REINFORCEMENTS FOR FIBRE REINFORCED CONCRETE***

***Patent/project number: PhD thesis***

***Author/s: Andrei–Mihai BACIU, Imre KISS***

***Institution: Politehnica University Timişoara, Faculty of Engineering Hunedoara***

***Category: B***

***Description:*** *One of the materials that is the basis of constructions around the world is reinforced concrete, a material with truly remarkable properties and strengths. Reinforced concrete is a combination of adequate reinforcement and concrete designed to work together to resist applied loads.*

*Properly placed reinforcement in concrete improves its compressive strength, the improper placement of the reinforcement designed to resist tension being one of the most common causes of structural concrete failures. In addition to its use to resist various tensions, reinforcements are used in concrete to minimize cracking, or more precisely, to promote numerous small cracks in place of fewer large cracks, in concrete structures.*

*Also, reinforcements are used in concrete to limit widths and control spacing of cracks due to stresses induced by temperature changes and shrinkage. Concrete with fibres is stable, resistant, durable and much lighter than normal concrete.*

*Unlike concrete with fibres, normal concrete is prone to cracking and has a lower tensile strength. With the help of suitable additives, such as fibres, concrete types with greatly improved properties are created.*

***State of development: prototype***
***Contact: Imre Kiss / UPT /FIH/ DEM/ imre.kiss@fih.upt.ro***
***Presentation link: https://www.fih.upt.ro/v4/eng/ https://citt.upt.ro/en/***

***36.***

***Title: DESIGN AND REALIZATION OF A COMPRESSION MOULDING PRESS USED TO PRODUCE PLATE COMPOSITE PARTS***
***Patent/project number: PhD thesis***
***Author/s: Mihai–Paul TODOR, Imre KISS***
***Institution: Politehnica University Timişoara, Faculty of Engineering Hunedoara***
***Category: B***
***Description:*** *Compression moulding is one of the oldest manufacturing technique used to rapidly cure large quantities of complex fibre–reinforced polymer parts on a rapid cycle time. Compression moulding is a high–volume, high–pressure method suitable for moulding fibre or fabric reinforcements –unidirectional tapes, woven fabrics, randomly oriented fibre mat or chopped strand– into a polymer matrix material. In fact, the compression moulding is a manufacturing process in which three–dimensional shapes are sandwiched between two matching moulds, using heat and pressure.*

*The material is placed in a temperature controlled cavity – defined between two heated metal moulds mounted in pneumatic presses – then shaped under intense pressure and heat (from 120–2000C) until the part cures. Therefore, the process parameters includes moulding time, temperature, and pressure. Compression features fast moulding cycles and high part uniformity and it provides design flexibility and nice surface finishes.*

*In addition, it is one of the lowest cost moulding methods compared with other methods such as transfer moulding and injection moulding, due to the labour costs are low, the trimming and machining operations being minimized. We'll show how anyone can use this process to create plate composite prototypes using a composite moulding press, designed and realized within the faculty's Laboratory.*

***State of development: prototype***
***Contact: Imre Kiss / UPT /FIH/ DEM/ imre.kiss@fih.upt.ro***
***Presentation link: https://www.fih.upt.ro/v4/eng/ https://citt.upt.ro/en/***

*37.*

***Title:*** ***POST–CONSUMER ALUMINUM SCRAP – A CHALLENGE IN ALUMINIUM RECYCLING***
***Patent/project number: PhD thesis***
***Author/s: Ciprian BULEI, Imre KISS***
***Institution: Politehnica University Timişoara, Faculty of Engineering Hunedoara***
***Category: B***
***Description:*** *Aluminum is one of the most recyclable materials, as it can be recycled over and over again, and is one of few materials that keeps its properties after recycling. It can be re–melted and used again and again in new products, making it an environmentally friendly metal and a sustainable material. This makes aluminum an excellent material to meet the needs and challenges of different products. Also, aluminum recycling offers advantages in terms of environmental and economic benefits. Therefore, more aluminum must be collected, sorted, and returned into the economy as new products. Aluminum recycling is the process by which various scrap aluminum can reuse in products after its initial production and involves simply re–melting these scraps. This work provides an overview of the basic aluminum recycling process, using postconsumer scrap in the melting process in few laboratory experiments. Typically, postconsumer aluminum scrap is a mixture of alloys and sometimes even a mixture of metals, the main sources for aluminum scrap being the packaging, technology, construction, and the transport industry. In our experiments, different aluminum scrap sources were considered: mixed packaging aluminum scrap and used beverage can scrap, aluminum from electric cables and aluminum from collected castings.*
***State of development: prototype***
***Contact: Imre Kiss / UPT /FIH/ DEM/*** *imre.kiss@fih.upt.ro*
***Presentation link:*** *https://www.fih.upt.ro/v4/eng/ https://citt.upt.ro/en/*

*38.*

***Title: DEVELOPMENT OF THE RARE, DEFICIENT OR CRITICAL METAL RAW MATERIAL BASE AND APPLICATION OF INNOVATIVE TECHNOLOGIES***
***Author/s: Vasile Andrei FODOR, Teodor HEPUT, Imre KISS***
***Institution: Politehnica University Timişoara, Faculty of Engineering Hunedoara***
***Category****: B*
***Description****: Access to raw materials is fundamental in a functioning, modern and sustainable society. The technological development have increased global demand for many raw materials. Many of the critical metals are very important constituents in products, but they are rarely used in large volumes and are minor components compared with base metals (copper, zinc, lead, aluminum and iron). Modern technological developments and innovations generate increasingly complicated products that require access to a number of "new" raw materials. CRITICAL RAW MATERIALS are defined as those that pose a particularly high risk of lack of supply in the coming years and that play a particularly important role in the value chain. In other words, they are at the forefront, the risk of poor supply is high and their economic importance is high. The monitoring of the situation and systems for the development of the rare, deficient or critical metal raw material base and the results of research into the application of innovative technologies open up new opportunities and perspectives. POWDER METALLURGY is the way of producing sintered products.*

*Powder is the most important raw material and the starting point of mineral products. It can be mixed with other item powders to make a variety of alloys or pseudo–alloys.*
***State of development: PhD thesis***
***Contact: Imre Kiss / UPT /FIH/ DEM/ imre.kiss@fih.upt.ro***
***Presentation link: https://www.fih.upt.ro/v4/eng/ https://citt.upt.ro/en/***

***39.***

***Title: EFFECT OF WELDING SPEED ON SUBMERGED WELDED JOINT TENSILE STRENGTH***
***Patent/project number: PhD thesis***
***Author/s: Cioroagă Bogdan-Dorel; Coordinators: SOCALICI Ana Virginia, CIOATĂ Vasile George***
***Institution: Politehnica University Timisoara, Faculty of Engineering Hunedoara***
***Category: B***
***Description:*** *There are many regim parameters that can influence the quality and strength of a welded joint, the most comun one to evry arc welding technology is the welding speed. Part of the research consists of analyzing the effect of the welding speed on the mechanical properties of the welded joints in order to research the influence of welding speed 5 stages of variation where used to obtain a set of 4 tensile test samples for every stage that represents a distinct welding regim. Tensile-displacement and force-displacement curves resulted after testing the specimens, the data shows that increasing just the welding speed results in a similar welding effect as decreasing the electric arc amperage. After the tensile tests, it was found that the breaking of the majority of the samples takes place through the welding seam, having a brittle break, meaning that the welded area is much harder than the base material of the test specimen. The average braking force registered for the 5 sets of specimens are between 68-88 kN.*
***State of development: PhD research***
***Contact: cioroagabogdandorel@yahoo.com***
***Presentation link: https://www.fih.upt.ro/v4/eng/ https://citt.upt.ro/en/***

***40.***

***Title: RESEARCH IN THE LABORATORY PHASE REGARDING THE PROCESSING OF STEEL SLAG BY BRIQUETTING***
***Patent/project number: PhD thesis***
***Author/s: Lupu Oana; Coordinator Prof. Dr. Ing. Socalici Ana***
***Institution: Politehnica University Timisoara, Faculty of Engineering Hunedoara***
***Category: B***
***Description:*** *The slag represents approximately 70% of the waste produced in the steel sector and the recycling of the ferrous fraction of the slag in various technological stages within an integrated plant represents a strategic problem in the environmental protection policy in the steel sector. Experiments in the laboratory phase consisted in obtaining briquettes from steel slag (fractions 0-3mm, 3-5mm, 5-8mm and 8-10mm) mixed with ferrous sludge resulting from the steel industry. The experimental briquettes obtained have an iron content of 48-55% Fe. The small and pulverulent wastes from the steel industry, due to their high content of iron, manganese, carbon and various oxides (elements useful in the production process of cast iron or steel), are considered components of natural capital because they are exploited in the steel industry. The quality characteristics related*

*to the strength and chemical composition of the obtained briquettes are suitable for their use as a metal assortment in the charge of electric arc furnaces in a proportion of 5-10%.*

***State of development: PhD research***
***Contact:*** *oana.lupu@yahoo.com*
***Presentation link:*** *https://www.fih.upt.ro/v4/eng/ https://citt.upt.ro/en/*

**41.**

***Title: OPTIMIZATION OF THE PROCESS FLOW PRODUCTING STEEL CONTINUOUS CAST SEMIFINISHED PARTS***
***Patent/project number: PhD thesis***
***Author/s: Mihai Radu, Teodor Heput, Erika Ardelean, Vasile Putan***
***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: B***
***Description:*** *At present, steel is elaborated in oxygen and electric arc furnaces. The paper presents the results of the research done on the structure of charge loads, the main chemical elements, equivalent carbon, the reduction of nitrogen content in the steel produced in an electric steel plant, using a 100 t EBT-type electric arc furnace, LF-type ladle furnace installations, VD vacuum degassing and a 5-strand continuous casting machine. The data related to steel vacuum treatment have been processed in EXCEL in view of establishing correlations among the dependant parameters, respectively the amount of nitrogen and the yield of its removal, and the independent ones: the total duration of vacuum treatment. The resulting correlations are given both in analytical and graphical form, as well as through their technological analysis. The research resulted in a series of conclusions applicable in research and in current practice.*
***State of development: PhD research***
***Contact:*** *mihairadu_66@yahoo.com* ***+40729077933***
***Presentation link:*** *https://www.fih.upt.ro/v4/eng/ https://citt.upt.ro/en/*

**42.**

***Title: INCREASING THE COMPETITIVENESS OF PRECESSIONAL TRANSMISSIONS BY DEVELOPING AND CAPITALIZING ON THE GEAR WITH "CONFORMING" CONTACT OF THE TEETH.***
***Patent/project number: Patent nr. 1616 Y MD, of 30.04.2022***
***Author/s: Ion Bostan, Viorel Bostan, Maxim Vaculenco, Ion Bodnariuc, Valeriu Dulgheru, Sergiu Mazuru, Mihai Ţopa, Radu Ciobanu, Oleg Ciobanu, Nicolae Trifan, Malcoci Iulian, Dumitru Vengher, Serghei Scaticailov, Valeriu Odainâi, Victor Pavelco, Alina Bregnova, Vasile Muntean.***
***Institution: Technical University of Moldova***
***Category: B***
***Description:*** *Creating contact between teeth with convex-concave geometry and small difference in curves. It was found that the absolute multiplicity of tooth engagement (100%) in compliance with the three defining conditions can occur only when using the variable convex / concave profile of the tooth flanks, usually the central wheels, depending on the values of conical axoid angles and notation the radius of*

*curvature of the profiles of the teeth of the crowns of the satellite wheel, as well as the number of teeth of the Z wheels and their ratio.*
*The purpose of the stage:*
*- to identify the conditions for increasing the load-bearing capacity of the gearing ADCX-CV and AD,βCX-CV, and for decreasing the energy losses in the convex-concave contact of the multiparous teeth;*
*- determining the functional characteristics of the kinematic precessional transmissions with gearing ADCX-CV and identifying the technical solutions to increase them.*
*The technical solutions mentioned above are the basis for the development of transmissions with precessional gearing.*
***State of development: Implemented at laboratory level, prototype inside the Technical University of Moldova.***
***Contact:*** *maxim.vaculenco@dip.utm.md*
***Presentation link:*** *www.utm.md*

**43.**

***Title: CAVITATION EROSION RESISTANCE OF GX40CRNISI 25 – 20 CAST STAINLESS STEEL***
***Patent/project number: PhD thesis***
***Author/s: [1] Daniela COSMA (ALEXA), [2] Ion MITELEA, [2] Ilare BORDEASU, [1] Vasile ALEXA, [2] Corneliu Marius CRACIUNESCU***
***Institution: Politehnica University Timisoara, 1 Faculty of Engineering Hunedoara, 2 Faculty of Mechanical Engineering***
***Category: B***
***Description:*** *Cavity erosion is a complex and localized phenomenon involving mechanical, chemical and metallurgical parameters. The development of new materials depends on understanding the relationship between microstructure and cavity erosion. This paper investigates the role played by the chemical composition and microstructure on the erosion behavior through the cavity of a high alloy steel 25Cr – 20Ni cast in parts. The cavitation tests were performed using an ultrasonic vibrator at a frequency of 20 kHz and an amplitude oscillation amplitude of 50 µm. The surface of the eroded samples was examined under an optical microscope and an electron scanning microscope. It's performance is compared to that of cast martensitic stainless steel, GX10Cr13.*
***State of development: Scientific Paper***
***Contact:*** *axadaniela@yahoo.com*
***Presentation link:*** *https://www.fih.upt.ro/v4/eng/ https://citt.upt.ro/en/*

**44.**

***Title: ReCorr QCQ QUANTITATIVE COATING QUALITY IMPEDANCE ANALYZER***
***Patent/project number: Research project***
***Author/s: SANJA MARTINEZ, IVANA SOIC***
***Institution: University of Zagreb, Croatia, Faculty of Chemical Engineering and Technology***
***Category: B***

***Description***: *ReCorr QCQ is the first coating impedance tester tailored and EMC certified for use in industrial environments. The fast and easy application allows rating of the coatings with high confidence and precision (≥ 97%) which can be achieved through the integrated software function for AC interference management.*

*The device consists of a pair of flexible, conductive polymer electrodes that adhere to a coated surface with the aid of a low-resistivity paste. The electrodes are connected to the impedance spectroscopy instrument, which is controlled by the Android tablet.*

*Any coated metallic object is suitable for ReCorr® QCQ measurements. For small or irregularly shaped samples and for continuous monitoring, customized electrode design is used.*

***State of development: Product***
***Contact:*** *info@savez-inovatora-zagreba.hr*
***Presentation link:*** *https://www.savez-inovatora-zagreba.hr/*

***45.***

***Title: NAGA MIRACLE LANDSCAPE @ WAT SI KUNARAM: AN INNOVATIVE OUTDOOR MUSEUM WITH LCDS DESIGN***
***Patent/project number: unconventional architectural design***
***Author/s: Asst. Prof. Khiensak Seangklieng, Ph.D., ASA.***
***Institution: Faculty of Architecture and Planning, Thammasat University, Thailand***
***Category: B***
***Description***: *The main goal and objective of this invention is to design the new approach of unconventional architectural organization that enhancing the public opened spaces with innovative museum of built environment and to integrate the concept of Eco-friendly environment using the concept of Low-cost Design Solution: LCDs. Research-based design is strongly applied as a key principle in both creativity and practicality of an interactive museum in the context of cultural landscape.*

*The design responses to an interactive between people and their contexts of living museum. Naga Miracle Landscape @ Wat Si Kunaram reveals that space organization, materials use and construction technology would be taken into futuristic design of architects' accountability.*

***State of development: Eco-friendly architectural Low-cost Design Solution***
***Contact:*** *khiensak@yahoo.com*
***Presentation link:*** *https://www.tds.tu.ac.th/en/homeen/*

***46.***

***Title: DEMOUNTABLE MODULAR CONTAINER AND KIT TO BUILD A DEMOUNTABLE MODULAR CONTAINER***
***Patent/project number: U 2021/00001***
***Author/s: SC DBV RESEARCH SRL***
***Institution: "Justin Capră" Association***
***Category: B***
***Description:*** *The present invention relates to a demountable modular container for providing a space with an optimal microclimate for use in various fields of activity such as office workplaces, temporary housing,*

*spaces for mobile hospitals and the like. The technical problem that the present invention solves is to make a fully demountable modular container that can be fully assembled by assembly tools, without involving welding operations and that can be delivered in packages with dimensions that are within the maximum regulated limit for road transport.*
***State of development:***
***Contact:*** *office@dbv-research.ro*

***47.***

***Title: CHARACTERIZATION METHOD OF THERMOPLASTIC COMPOSITE MATERIALS MADE BY CAFT TECHNOLOGY***
***Research project: My SMIS 121434***
***Author/s: Emilia Ciupan, Ioan Filip*, Mihai Ciupan, Emanuela Pop***
***Institution: Technical University of Cluj-Napoca, *TAPARO SA Târgu Lăpuş***
***Category: B***
***Description:*** *The method consists through the following operations:*
*1. Elaboration of the composite material recipe: choice of constituents and their weight*
*2. Formation of the fibrous layer by Carding Airlaid Fusion Technology*
*3. Tailoring the material to the size of 400x400 mm;*
*4. Consolidation by thermoforming: Setting the parameters of the thermoforming process; Pressing into the mold and consolidation by cooling*
*5. Cutting and marking the samples*
*6. Testing the samples*
***State of development: product***
***Contact:*** *emilia.ciupan@mis.utcluj.ro*
***Presentation link:*** *https://www.utcluj.ro/en/*

***48.***

***Title: STAND FOR THERMOFORMING SAMPLES FROM THERMOPLASTIC COMPOSITE MATERIALS***
***Research project: My SMIS 121434***
***Author/s: Cornel Ciupan, Emilia Ciupan, Emanuela Pop***
***Institution: Technical University of Cluj-Napoca***
***Category: B***
***Description:*** *The invention consists in making a cheap and efficient stand intended for obtaining samples that are used for the characterization of thermoplastic composites with vegetable fibers.*

*The stand consists of a Tefal type convection oven, a ZOKURA Z1188 analog oven thermometer with temperature measurement capabilities up to 300 °C and a set of molds for obtaining the samples.*

*The stand consists of a Tefal convection oven, a ZOKURA Z1188 analog oven thermometer with a maximum temperature capability of 300 °C and a set of molds for obtaining the samples.*

*Two different thermoforming molds were made. Each mold is made up of a base plate and a forming plate. The composite is inserted between two PTFE sheets.*

***State of development: The laboratory stand.***
***Contact:*** *emilia.ciupan@mis.utcluj.ro*
***Presentation link:*** *https://www.utcluj.ro/en/*

***49.***

***Title: THERMOFORMING PROCESS OF SAMPLES MADE OF COMPOSITE MATERIALS WITH PLANT FIBERS AND POLYPROPYLENE***
***Research project: My SMIS 121434***
***Author/s: Emilia Ciupan, Emanuela Pop, Emilia Campean***
***Institution: Technical University of Cluj-Napoca***
***Category: B***
***Description:*** *The thermoforming process of the samples consists of the following stages:*
*1. Prepare the vegetable fiber in lengths between 1 and 10 mm*
*2. Polypropylene is cut to lengths of max. 10 mm (cut with manual scissors)*
*3. Prepare the composite mixture in the form of a fibrous mixture and homogenize it by mixing and pulverizing*
*4. Place the mixture in the mold and press by progressively tightening the clamping screws*
*5. Adjust the oven to a temperature between 190-220 °C*
*6. Insert the mold into the oven and adjust the heating time*
*7. Remove the mold and wait enough time for cooling*
*8. Unscrew the screws and remove the reinforced plate*
*9. Clean the plates and repeat the cycle.*
***State of development: The process was applied for the characterization over 20 thermoplastic composite material recipes.***
***Contact:*** *emilia.ciupan@mis.utcluj.ro*
***Presentation link:*** *https://www.utcluj.ro/en/*

***50.***

***Title: METHOD OF OPTIMIZATION OF EXPERIMENTAL DESIGN USING VORONOI DIAGRAMS APPLIED TO POLYMERIC CONCRETE***
***Patent application number: RO135128 (A2) - 2021-07-30***
***Author/s: Mihai Ciupan***
***Institution: Technical University of Cluj-Napoca***
***Category: B***
***Description:*** *The invention relates to a method for optimization of bifactorial experimental design intended for research in the field of polymeric concrete performance. According to the invention, the method consists of determining the independent variables and the rectangular variation domain thereof, fixing four points (C1, C2, C3 and C4) in the rectangle corners, determining the other n - 4 points as C5, ..., Cn, randomly on the rectangle surface, calculating the Voronoi diagram and moving the points C5, ..., Cn to the interior of the rectangle, up to obtaining corner surfaces Sc=S1=S2=S3=S4 equal to one another and inner surfaces Si=S5=S6=...=Sn equal to one another and having surface areas as close as possible.*

***State of development: Software product and PhD thesis.***
***Contact: mihai.ciupan@muri.utcluj.ro***
***Presentation link: https://www.utcluj.ro/en/***

***51.***

***Title: HYDROPHOBIC COATING WITH SELF-CLEANING AND ANTIMICROBIAL PROPERTIES FOR ARTIFICIAL ELEMENTS OF VERNACULAR CONSTRUCTIONS AND METHOD OF OBTAINING IT***
***Patent/project number: A00773/28.11.2022***
***Author/s: Toma Fistos, Radu Claudiu Fierascu, Roxana Ioana Brazdis (Matei), Anda Maria Baroi, Irina Fierascu, Alina Melinescu, Anton Ficai, Denisa Ficai, Lia Mara Ditu, Carmen Curutiu***
***Institution: National Institute for Research & Development in Chemistry and Petrochemistry – ICECHIM Bucharest***
***Category: B***
***Description:*** *The present invention relates to a nanocomposite coating material with self-cleaning, photodegradation and antimicrobial properties, which provides protection (consolidation) for artificial building elements in the composition of vernacular constructions (materials with high silica content), based on modified polymeric hydrophobic nanocomposites with amorphous silica (having a consolidating and self-cleaning role), a photocatalytic component (in order to reduce the accumulation of pollutants, biofilm and particles on these surfaces), to which is added a component with an antimicrobial effect, dispersed in an alcoholic solution.*

*This work was supported by a grant of the Romanian National Authority for Scientific Research and Innovation, CNCS/CCCDI-UEFISCDI, project number PN-III-P2-2.1-PED-2021-0627, contract 591PED/2022, within PNCDI III.*

*It is also acknowledged the support of Ministry of Research, Innovation and Digitization through Program 1 - Development of the national research-development system, Subprogram 1.2-Institutional performance- Projects to finance excellence in RDI, Contract no. 15PFE/2021.*

***State of development: patent application, laboratory***
***Contact: fierascu.radu@icechim.ro Fierascu Radu Claudiu (Technical Manager)***
***Presentation link: https://icechim.ro/en/***

***52.***

***Title: LASER ABLATION SYSTEM IN PRESSURIZED ENVIROMENTS***
***Patent/project number: Ph.D. thesis***
***Author/s: Alexandru – Mihai IAMANDI, Marian – Florentin GHENA, Liviu – Daniel GHICULESCU***
***Institution: University POLITEHNICA of Bucharest***
***Category: B***

***Description:*** *Laser ablation of metal targets in liquid, gaseous or supercritical fluid media is one of the most effective techniques available at the moment for the production of pure and durable nanoparticles or nanostructures with direct bio-medical applications.*

*Understanding the fundamental aspects of this process can lead to better control of nanoparticle properties and their adaptation for medical products, pharmaceuticals, surface coatings, sensors of various gases, temperature, humidity, virus detection, smart labels, etc.*

*The aim of the work is to develop an ablation system in liquid/gas/supercritical environments at different pressure stations for the production of nanoparticles and nanostructures.*

***State of development: Ph.D. thesis***

***Contact:*** ***iamandi.alexandru96@gmail.com***

***53.***

***Title: Glass functionalisation and decoration with nanoparticles: A challenging way to induce new applications***

***Patent/project number: TE 95 2022***

***Author/s: Cornelia Ioana ILIE, Ludmila MOTELICA, Angela SPOIALA, Denisa FICAI, Ovidiu Cristian OPREA, Anton FICAI***

***Institution: University POLITEHNICA of Bucharest***

***Category: B***

***Description:*** *The purpose of this project proposal is to extend the uses of glass surfaces and prove its versatility by functionalization. In order to be able to use these glass supports in the development of such devices, they must be functionalized and the most appropriate way is through silanization. The support is the key factor, so from all the materials available and studied, glass was chosen, due to the very good stability and its suitability to functionalization via the silanolic groups. The main focus of the project is related to the use of these glasses on which functional groups and various receptors will be attached in order to use them in applications such as forensic (for the detection of various drugs, toxins and heavy metals, which are harmful to human health), medical or environmental applications. The surface modification, the immobilisation or decoration with nanoparticles as well as the functionality will be assessed by using the most appropriate characterization techniques such as ICP-MS, FTIR, UV-VIS, DTA-TG, SEM, and/or FTIR/RAMAN microscopy.*

***State of development: under patenting***

***Contact: Anton FICAI, anton.ficai@upb.ro***

***54.***

***Title: Modeling the photocatalytic and antimicrobial activities of ZnO by choosing the alcohol type in the synthesis***

***Patent/project number: 573PED/2022: PN-III-P2-2.1-PED-2021-3414***

***Author/s: Ludmila MOTELICA, Bogdan-Stefan VASILE, Anton FICAI, Adrian-Vasile SURDU, Denisa FICAI,Ovidiu-Cristian OPREA, Ecaterina ANDRONESCU, Dan Corneliu JINGA and Alina Maria HOLBAN***

***Institution: University Politehnica Bucharest***

***Category: B***

***Description:*** *Zinc oxide (ZnO) is one of the most important nanomaterials, which is used in various health-related applications, from antimicrobial textiles to wound dressing composites and from sunscreens to antimicrobial packaging. Purity, surface defects, size and morphology of the nanoparticles are the main factors that influence the antimicrobial properties. In this study we are comparing the properties of the ZnO nanoparticles obtained by solvolysis using a series of alcohols: primary from methanol to 1-hexanol, secondary (2-propanol and 2-butanol) and tertiary (tert-butanol). While the synthesis of ZnO nanoparticles is successfully accomplished in all primary alcohols, the use of secondary or tertiary alcohols does not lead to ZnO as final product, underlining the importance of the used solvent. The shape of the obtained nanoparticles depends on the used alcohol, from quasi-spherical to rods, and consequently different properties are reported, including photocatalytic and antimicrobial activities. In the photocatalytic study, the ZnO obtained in 1-butanol exhibited the best performance against methylene blue (MB) dye solution, attaining a degradation efficiency of 98.24%. The comparative study among a series of usual model dyes revealed that triarylmethane dyes are less susceptible to photo-degradation. The obtained ZnO nanoparticles present a strong antimicrobial activity on a broad range of microorganisms (bacterial and fungal strains), the size and shape being the important factors. This permits further tailoring for use in medical applications.*
***State of development: research project.***
***Contact:*** *motelica_ludmila@yahoo.com*

***55.***

***Title: Long-Lasting Innovative NanoCoatings for Heritage Preservation***
***Patent/project number: 736 PED 2022***
***Author/s: Liliana Marinescu, Ludmila Motelica, Cornelia Ilie, Angela Spoiala, Denisa Ficai, Ovidiu Cristian Oprea, Viorica Maria Corbu, Marcela Popa, Irina Gheorghe-Barbu, Carmen Mariana Chifiriuc, Anton FICAI***
***Institution: University POLITEHNICA of Bucharest***
***Category: B***
***Description:*** *The project approce an experimental and demonstrative research that aims to develop new innovative technologies for the treatment of various surfaces such as stone, composites based on cement, glass, wood, or other materials, to ensure anti-adhesion capacity; antibacterial and antifungal as well as the possibility of sealing cracks. For this purpose, new silica-based coatings (monosiloxane with different functional groups and disiloxane) will be used and will be further decorated with Ag, Au, Cu, ZnO, TiO2 nanoparticles. Siloxane-based solutions called coupling agents can react with nanoparticles by chemically bonding Au, Cu, Ag nanoparticles by thiol groups or ZnO or TiO2 nanoparticles by disiloxane agents, imparting complex surfaces with the specific properties mentioned above.*
***State of development: research project.***
***Contact:*** *denisaficai@yahoo.ro*

***56.***

***Title: Magnetic smart drug delivery systems for theranostic using a personalized approach***
***Patent/project number: TE 96 / 17.05.2022***
***Author/s: Denisa Ficai, Ludmila Motelica, Angela Spoiala, Ilie Cornelia, Ovidiu Cristian Oprea, Anton FICAI***
***Institution: University POLITEHNICA of Bucharest***
***Category: B***

***Description:*** *The project addresses an experimental and demonstration research aimed at developing new nanostructured systems for targeted cancer therapy, based on natural catabolism products (dicarboxylic amino acids, hydroxyacids and keto acids as coatings and natural or synthetic antitumor compounds) with improved cell internalization. For the implementation of the demonstration model, the project starts from a conceptual level which consists in designing new multifunctional compounds such as: Fe3O4 @ MC - Hydrophobic cytostatic, Fe3O4 @ MC - Hydrophilic cytostatic, using dicarboxylic amino acids (eg glutamic acid, aspartic acid or derivatives, hydroxyacids (eg tartaric acid, gluconic acid, vitamin C / ascorbic acid, folic acid) and ketoacids, compounds that will allow improved internalization because tumor cells are more active compared to normal cells and must satisfy increased need for nutrients and oxygen.*
***State of development: research project.***
***Contact:*** *denisaficai@yahoo.ro*
***Presentation link:*** *https://upb.ro/en/*

***57.***

***Title: FLASH CONCRETE - Optimizing the Use of Fly Ash in Concrete***
***Patent/project number: Copyright***
***Author/s: Muhammad Akmal Aiman Uzair, Nur Liza Rahim, Roshazita Che Amat, Norlia Mohamad Ibrahim, Syakirah Afiza Mohammed, Mohd Mustafa Albakri Abdullah, Norazian Mohamed Noor***
***Institution: Universiti Malaysia Perlis***
***Category: B***
***Description:*** *This research focuses on morphology properties, mineralogy, physical and mechanical properties of fly ash mixed with concrete mixture.*
***State of development: Research Project***
***Contact:*** *yusrina@unimap.edu.my*
***Presentation link:*** *https://www.unimap.edu.my/index.php/en/*

***58.***

***Title: THE EVOLUTION OF THE ALLOYS USED IN THE MANUFACTURE OF THE GEARBOX***
***Patent/project number: Student Project***
***Author/s: Ludvic Kasler; Coordinator: Corneliu Birtok-Băneasă***
***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: B***
***Description:*** *The study traces the history and evolution of the gearbox which is an important component of the transmission system through which the power of an engine can be transformed into motion. The study starts from the utility of this component in the architecture of an automobile and considers the analysis of the materials and alloys used for the construction of the gearbox. The weight of some elements in the composition of the alloys is followed from metals and non-metals to plastic and composite materials. How do these changes influence the performance increase of a car? How will it affect production costs and what will be the impact on the environment? These are the questions to which this study seeks answers.*
***State of development: research project***
***Contact:*** *albertelectronics@yahoo.com*

# C - Computer sciences, Electronics and Electrical engineering

**1.**

***Title: ToF NORMAL ESTIMATION FOR PULSE BASED ToF CAMERA USING CNN***
***Patent/project number: Patent application OSIM: A/00559/17.09.2021***
***Author/s: Szilard Molnar, Levente Tamas***
***Institution: Technical University of Cluj-Napoca***
***Category: C***
***Description:*** *A system and method for automatically computing spatial surface normals in 3D data from the pulse based Time-of-Flight (ToF) cameras is provided. Moreover, the system comprises a component which is using convolutional neural network (CNN) for computing the normals of a 3D pointcloud sensed and returned from the ToF camera depth images. The CNN is based on the 3 channel composition of information which is trained on a large real and synthetic dataset, for which an automatic 3D point processing chain is used to determine the normals. During the evaluation mode, the CNN is able to compute the normals of the pointcloud from the ToF camera, ensuring a fast and robust normal estimation for the pointclouds.*
***State of development: prototype***
***Contact:*** *Liliana.Pop@staff.utcluj.ro*
***Presentation link:***
*https://research.utcluj.ro/tl_files/research/Research%20Domain/Systems%20Engineering/ROCON_Busoniu.pdf*

**2.**

***Title: MPI PLANAR CORRECTION OF PULSE BASED ToF CAMERA USING CNN***
***Patent/project number: Patent application OSIM: A/00560/17.09.2021***
***Author/s: Marian-Leontin Pop, Levente Tamas***
***Institution: Technical University of Cluj-Napoca***
***Category: C***
***Description:*** *A system and method for automatically eliminating the multi-path interference on planar surfaces caused artifacts for the pulse based Time-of-Flight (ToF) cameras is provided. Moreover, the system comprises a component which is using convolutional neural network (CNN) for the elimination of the artifacts sensed and returned from the ToF camera depth images. The CNN is based on the 3 channel composition of information which is trained on a large real and synthetic dataset, for which an automatic 3D point processing chain is extracting and marking the correct ground planar information. During the*

*evaluation mode, the CNN is able to correct in a seamless manner the artifacts on the planar patches from the ToF camera, ensuring a reduced MPI.*
***State of development: prototype***
***Contact:*** *Liliana.Pop@staff.utcluj.ro*
***Presentation link:***
*https://research.utcluj.ro/tl_files/research/Research%20Domain/Systems%20Engineering/ROCON_Busoniu.pdf*

**3.**

***Title: NU Eco Smart Fan (Mr. 360)***
***Patent/project number: Student Project***
***Author/s: Ms. Heng Sovanmonynuth, Mr. Chhoeung Rachana, Mr. Luy Mithona***
***Institution: Norton University, Cambodia***
***Category: C***
***Description:*** *Mr. 360 was built to help people feel convenient with automate fan that can turn around 360 degree which make people stay comfortable and saving energy.*
*Objective*

- *Reduce much fans from raw material*
- *Support with green energy*
- *Saving Time & Money*
- *Saving Energy*
- *Support disable person*

*We expected that Mr. 360 provide people and disabled people to feel convenient with automatic swings 360 degree, especially reduce the air pollution and cut down the global warming emissions. So, use NU Smart Fan to help encourage smart people to live with a modern lifestyle and latest technology.*
***State of development: Prototype***
***Contact:*** *mithonaluy@gmail.com*
***Presentation link:*** *https://www.youtube.com/watch?v=H8DE0-KUfiA*

**4.**

***Title: THE ROAD SURFACE ROUGHNESS CALCULATION***
***Patent/project number: EC00202274512***
***Author/s: Alifia Oriana Prabaswara; Sri Wahyu Ratna Sari***
***Institution: University of Muhammadiyah Malang, Indonesia***
***Category: C***
***Description:*** *Roads as transportation infrastructure capable of providing support services in the fields of education, trade, employment, and others. Road construction that is used continuously by vehicles such as trucks, cars, and motorbikes causes a decrease in the quality of roughness on the road surface. Road roughness is the condition of frictional resistance between the road surface and the tires so that there is no slippage or slippage when it rains, wet or dry. The road surface is declared safe and comfortable if it can*

*withstand the vehicle's load and friction and wear due to the vehicle's wheels. Therefore, we created an innovation called Smart (Miu) Meter. Smart (Miu) Meter is a tool to estimate road surface roughness using digital image processing. The Smart (Miu) Meter works by taking photos of some parts of the road that look good and have holes and then the images are transferred to the application and processed with digital image processing to get maximum results. It is hoped that the Smart (Miu) Meter will be superior to previous tools and more accurate.*
***State of development: prototype***
***Contact: 0817-7091-4129***
***Presentation link:*** *https://youtu.be/rpgR5SWdLuw*

***5.***

***Title: MiDA (Microsleep Detection Base On Arduino)***
***Patent/project number: student project***
***Author/s: Rajwa Kalila Firdausi; Dea Rakis Agustina***
***Institution: SMAN 1 Semarang, Indonesia***
***Category: C***
***Description:*** *One of the human factors that cause traffic accidents is sleepiness. This caused by the circadian rhythm or our body's biological clock which is influenced by body temperature, alertness level, and body energy level. The sleep detection system is known as "Microsleep Detection Base On Arduino" is designed to detect heart rate and eye blinking data via Arduino. This tool uses an impulse sensor placed on the tip of the index finger and a proximity sensor placed on assistive devices such as glasses. The proximity sensor is an electronic sensor that can detect the presence of objects in the vicinity without any physical touch that is used to determine whether a person's eyes are open or closed. The method is used in this study is the behavioral measure method, namely by paying attention to the movement of the blinking of the eye because if a person is sleeping, the distance between the two eyelids narrows and the frequency of blinking decreases until he falls asleep. So if this happens the glasses will give a warning as soon as possible. Based on this background, the author's goal is to utilize or develop glasses as a tool that can provide a warning as quickly as possible to sleepy drivers so as to prevent traffic accidents. The results of this experiment can be helpful for the development of real-time sleep detection and helps manage sleepiness to avoid accidents.*
***State of development: prototype***
***Contact: 0817-7091-4129***
***Presentation link:*** *https://iysa.or.id/about/*

***6.***

***Title: DDR SOFTWARE***
***Patent/project number: student project***
***Author/s: Doruk BOZOĞLU***
***Institution: Ankara Çankaya Atatürk High School / 9. Class student, TURKEY***
***Category: C***

***Description:*** *A unique encryption algorithm and software has been developed for the security of personal information of customers on e-commerce sites. In this study, it is tried to develop a symmetric encryption algorithm. As it is known, the sender and receiver keys are the same in symmetric encryption algorithms. Based on the rule of finding the third point based on the two points taken on elliptic curves, it has been investigated whether this rule can be used in lines that intersect both axes. It has been found that the desired rule is also satisfied in the correct equations. In addition, when the rule of finding the third point is applied on lines that intersect both axes, it has been discovered that the same points come once again at three points. Symmetric encryption was possible with the help of this feature. In the encryption algorithm, the ASCII character code of each character to be encrypted is written as the sum of up to 20 numbers. Random keys consisting of up to 20 numbers were generated against these 20 numbers. In the key consisting of 20 numbers and 20 numbers representing the ASCII Character Code, the corresponding numbers will not be the same. In this way, the slope is prevented from becoming undefined or zero. The important thing here is that the key and ASCII Character Code must be written as the sum of even numbers, since the rule to find the third point from two points will be applied.*
***State of development: product***
***Contact: +905522871705***
***Presentation link:*** *https://drive.google.com/file/d/13src4S45iSZtKRl-43_71ENGMLJhHCQu/view?usp=sharingv*

*7.*

***Title: NEXT GENERATION 3D DRAWING PROGRAM***
***Patent/project number: student project***
***Author/s: Remzi AKTAY***
***Institution: Çubuk Bilim Sanat Merkezi / Math Teacher, TURKEY***
***Category: C***
***Description:*** *An alternative drawing program to the currently used 3D drawing programs and the security algorithm and software to be used in data transfer. In this study, it is aimed to convert the three-dimensional drawings made into numerical data and to transmit these numerical data by encrypting. Sum formulas, translation in the orthogonal coordinate system, scale in the map, rules for finding the solution set of third-degree equations, permutation function, and derivative properties were used as a method. As a result of the studies, it has been found that the objects whose function giving the total number of points can be formed are cubes, rectangular prisms, spheres and regular octahedrons, with all coordinates of the points on and inside the 3-dimensional closed objects to be referenced as integers. It has been found that there should not be any two functions that give the same point number while the functions of these objects are being created, therefore only these objects should be taken as reference. As a result, the information of a three-dimensional object can be turned into numerical data by using the found reference objects and their functions, by performing translation and scaling.*
***State of development: product***
***Contact: +905413033614***
***Presentation link:*** *https://drive.google.com/file/d/1x01A2ZCO8og1UnjkUzKJk0md0-kkPUP2/view?usp=sharing*

8.

***Title: GENETIC ALGORITHM FOR SOLVING THE NON-LINEAR TRANSPORTATION PROBLEM ON NETWORK WITH ONE SOURCE AND ONE DESTINATION***
***Patent/project number: MD 7066/2021.09.28***
***Author/s: Tatiana PAŞA, Valeriu UNGUREANU***
***Institution: Moldova State University***
***Category: C***
***Description:*** *The proposed genetic algorithm for solving the transportation problem consists of the following steps:*
*Step 1 Initialization. The initial population of 4n chromosomes is generated. Each chromosome is described by a set Nr={ ⟦nr⟧ _1, ⟦nr⟧ _2,…, ⟦nr⟧ _n } which contains n integers and each element represents the number of arcs coming out of that vertex. So, for each position i=(1,n-1)¯a positive integer ⟦nr⟧ _i is generated between 1 and the number of arcs coming out of the vertex i, the number ⟦nr⟧ _n=0 is placed on the last position (no arc leaves the destination). The ⟦nr⟧ _i, i=(1,n-1)¯arcs coming out of the peak i, on which the product flow is transported, are randomly selected. The part of the flow passing through the arc (i, j), of the total flow entering the vertex i, is given by the matrix of the distribution proportions R={r_ij ⊢| i=(1,n)¯,j=(1,n)¯⊣ } randomly generated, and for which condition ∑_(j=1)^n⁒ ⟦r_ij=1,⟧ i=(1,n-1)¯, and r_ij=0, for i=n, j=(1,n)¯is respected.*
*Step 2 Decoding and Evaluating Chromosomes. Decoding involves associating each chromosome with an admissible solution of the form x=(x_1,x_2,… ⟦,x⟧ _m), where x_h, h=(1,m)¯is the amount of flux passing through the arc (i, j) calculated as follows: x_h=r_ij* ⟦cf⟧ _i, where ⟦cf⟧ _i is the amount of flow that enters the vertex i and x_h=0 if no flow passes through that arc. Evaluation involves determining the value of the objective function for each of the solutions obtained.*
*Step 3 Selection. Chromosomes are sorted in order of increasing the value of objective function in the solution associated with the chromosome. Chromosomes in the first half of the population, so 2n chromosomes, are transferred to the new population.*
*Step 4 Crossing chromosomes. Crossing occurs between chromosomes transferred to population P(i) from populat P(i-1). The same cut is randomly applied to both parent chromosomes taken in pairs. After cutting, the sets ⟦Nr⟧ _1 and ⟦Nr⟧ _2, Nr= ⟦Nr⟧ _1∪ ⟦Nr⟧ _2 , ⟦Nr⟧ _1={ ⟦nr⟧ _1, ⟦nr⟧ _2,…, ⟦nr ⟧ _k }, ⟦Nr⟧ _2={ ⟦nr⟧ _(k+1), ⟦nr⟧ _(k+2),…, ⟦nr⟧ _n } are obtained. ⟦Nr⟧ _1 – the left side and ⟦Nr⟧ _2 - the right side of the chromosome.*
*Each pair of parent chromosomes generates two offspring chromosomes as follows:*
*- the first offspring chromosome receives the left side of the mother parent chromosome and the right side of the father chromosome;*
*- the second offspring chromosome receives the left side of the father chromosome and the right side of the mother chromosome.*

*Each pair of parent chromosomes generates two offspring chromosomes and the population size remains constant.*
*Step 5 Mutation. A mutation on a chromosome gene is likely to be applied $\varepsilon \in [0.001, 0.01]$, and consists in generating a random number ⟦nr⟧ _i, between 1 and the number of arcs coming out of that peak, for a gene of the successor chromosome. The other genes remain unchanged.*
*Step 6 Check the stop condition. Stopping the execution of the algorithm occurs if the condition $|f(x\_(P(i)))-f(x\_P(i-1))| \leq \varepsilon$ is met for the solutions associated with the first chromosome in two consecutive populations P(i-1) and P(i).*

*As a solution to the problem serves the admissible solution that corresponds to the chromosome with the minimum value of the objective function in the last built population. Go to Step 2 if the stop condition is not met, otherwise STOP.*

***State of development: The algorithm is implemented in the Mathematica System.***
***Contact:*** *pasa.tatiana@yahoo.com*
***Presentation link:*** *https://usm.md/?lang=en*

***9.***

***Title: DATA ANALYSIS MODEL ON LEAKAGE OF ELECTROLYTES IN SOYBEAN PLANTS***
***Patent/project number: PhD project***
***Author/s: Ion GANEA, Ana BÎRSAN***
***Institution: Moldova State University***
***Category: C***
***Description:*** *The data obtained experimentally regarding the leakage of electrolytes in the leaves of soybean plants (Glicine max Merrill.) at the temperature of 46 oC, 48 oC, 50 oC and 52 oC in the Control group and in the foliar treated group with the humic compound Biovit.*

*The model was developed in the Wolfram Mathematica software system.The functions for the analysis of the influence of the Biovit preparation on the leakage of electrolytes in the Clavera variety were developed.*

*We compare the sample of plants treated with humate with the control group (the control) and find the difference in electrolyte leakage in percent (**Δ**), the difference in sample means ($\bar{d}$), the standard error of the differences ($s\bar{d}$, the result of the t test, the limit of the least significant differences (lsd) at the significance threshold of 0.05 and 0.01.*

*Data processing shows that the use of the humic compound Biovit significantly reduces the leakage of electrolytes in the leaves of soybean plants which suggests the involvement of this compound in the stabilization of biological membranes and the possibility of using Biovit in maintaining cellular homeostasis.*

***State of development: Statistical models and a database for scientific research were implemented in the biological safety laboratory, Moldova State University, aimed at obtaining high-yielding soybean crops and adapting plants to climate change.***
***Contact: E-mail:*** *ganea.ion@usm.md*
***Presentation link:*** *https://usm.md/?lang=en*

**10.**

***Title: METHOD FOR SELECTIVE SWITCHING***
***Patent/project number: A 2021 00462/ EP 22464001.1***
***Author/s: Ciprian Bejenar, Laurenţiu-Dan Milici, Constantin Filote, Mihai Raţă, Ciprian Afanasov, Elena-Daniela Lupu, Valentin Vlad, Constantin Ungureanu***
***Institution: University Ştefan cel Mare of Suceava***
***Category: C***
***Description:*** *The method for selective switching involves the introduction of the selective switching (connecting / disconnecting) capability of voltage sources and/or controllable and parallel connected converter modules from the composition of power systems through conditioned events with attenuated transition modeled in a specific way, so that it involves mathematics functions that compose a sigmoidal control logic approached differently, which gives it simplicity and performance along with malleability, without unpredictable, uncontrolled and unjustified compromises, which improves the switching process without additional implications, so that it does not involve the command of electromechanical devices because it improves compatibility, the performance and operational redundancy of the systems or parts thereof that implement it.*
***State of development: Mathematical model experimentally validated.***
***Contact:*** *costel@usm.ro*
***Presentation link:*** *https://www.youtube.com/watch?v=E7y-T9IjqII* ***and*** *https://www.youtube.com/watch?v=jf0azNmnTbA*

**11.**

***Title: EXTENSION DEVICE FOR THE DIAGNOSIS OF CONDUCTIVE CHARGING SYSTEMS***
***Patent/project number: Patent Application no. A 2021 00368 / EP 21464002.1***
***Author/s: Ciprian Bejenar, Marian Bejenar, Mihai Dimian, Laurenţiu-Dan Milici, Mariana-Rodica Milici, Ciprian Afanasov, Constantin Ungureanu, Mihaela Pavăl***
***Institution: University Ştefan cel Mare of Suceava***
***Category: C***
***Description:*** *The invention uses a simple solution from a constructive point of view and allows it to be attached for diagnostic purposes in the extension of any conductive charging system, being suitable as an accessory regardless of the testing equipment and/or system and it has the capability to incorporate an incorporable source of electrical energy and/or universal terminals, facilitating the extension action without the strict need for a human operator, because the device constitutes a monobloc testing probe for the acquisition of the related signals corresponding to the electrical parameters of interest in the process of diagnosis the conductive charging of an electric vehicle.*
***State of development: Theoretical model.***
***Contact:*** *costel@usm.ro*
***Presentation link:*** *https://www.youtube.com/watch?v=HVKruvCFwns*

**12.**

***Title: MOTION CONTROL SYSTEM***
***Patent/project number: Patent Application No. A 00397/2021, EP 21464003.9***
***Author/s: Toader Eusebiu, Milici Mariana Rodica, Pavăl Mihaela, Niţan Ilie, Bejenar Ciprian, Ungureanu Constantin, Lupu Elena Daniela***
***Institution: University Ştefan cel Mare of Suceava***
***Category: C***
***Description:*** *The motion control system according to the invention consists mainly of a mobile system consisting of two motors which are fed simultaneously or separately, the braking being carried out by means of two nitinol springs, which once fed act on the system braking.*
*The movement of the mobile system is controlled by means of a joystick 5, and a braking system consisting of two nitinol springs 6 and 6' (powered by a battery provided with a charging system), which operates two clogs 9 and 9'.*
*The braking system is controlled by a microcontroller 12 and a relay module 13, the response speed of the braking system being improved by the use of a fan 14.*
*The travel controls are made with the help of a joystick 5 with five possibilities of operation (forward, reverse, left, right, braking).*
***State of development: Theoretical and experimental model.***
***Contact:*** costel@usm.ro
***Presentation link:*** https://usv.ro/en/homepage-2021/

**13.**

***Title: METHOD FOR INTEGRATING REAL LIFE ASSETS IN TO THE METAVERSE WITH REAL-TIME DATABASE SECURITY***
***Project number: A / 00100 / 25.02.2022***
***Author/s: Andrei CRISAN***
***Institution: Politehnica University of Timişoara***
***Category: C***
***Description:*** *The patent refers to the use of the digital twins of real-life 3D assets (e.g. buildings, details, statues, art, etc.) in a virtual environment that will allow for:*
- *Secure access to database.*
- *Realtime user interaction with the asset in the virtual space.*
- *Realtime user interaction in the virtual space.*
- *User contribution to information database.*
- *Create/transact NFTs.*
- *Online corporate meetings in historic setups.*

***State of development: prototype***
***Contact:*** andrei.crisan@upt.ro
***Presentation link:*** https://www.upt.ro/ https://citt.upt.ro/en/

**14.**

***Title: METAL GLAND FOR LARGE DIAMETER ELECTRICAL CABLES***
***Patent number: A/00303/30.07.2018***
***Authors: Dan Ciortea, Gabriel Nicolae Popa***
***Institution: Politehnica University Timişoara, Faculty of Engineering Hunedoara***
***Category: C***
***Description:*** *The invention relates to a single-body metal gland intended for sealing large-diameter cables or metal pipes when passing them through the wall of an enclosure. The gland consists of the metal body, the toroidal chamber with a filling-emptying valve, the rubber gasket and the locking nut. In the body of the gland is a rubber chamber with a valve. The rubber chamber with the valve is the sealing element between the outer surface of the electric cable and the inner surface of the gland body. An inert gel is inserted under pressure into the rubber chamber which inflates the toroidal chamber to its maximum contact with the outer surface of the cable or pipe. The deformation of the toroidal chamber allows perfect sealing regardless of the geometry of the large section of electric cable. The gland can have various fields of use:*
*- transport, distribution and use of electricity;*
*- the electrical machine and plant construction industry;*
*- metal drive cabinets.*
*The metal gland for electrical cables or large-diameter pipes has the following advantages:*
*- it is simple from a constructive point of view, having only four components;*
*- it has a low-cost price compared to existing glands on the market;*
*- it adapts well to the irregular surfaces of large-diameter armoured electric cables;*
*- a gland with a given inner diameter can be used for a wide range of electrical cables of different diameters;*
*- it is reliable in operation;*
*- the sealing process of the cable/pipe is performed in a very short time, on the order of seconds, it does not require a torque wrench or special technical skills;*
*- the amount of air initially existing in the toroidal chamber acts as a buffer element and allows maintaining the contact pressure between the toroidal chamber and the outer insulation of the cable even under the conditions of a temperature variation.*
***State of development: technical concept***
***Contact: Gabriel Nicolae Popa; Telephone: 0040254207541 Email:*** *gabriel.popa@fih.upt.ro*
***Presentation link:*** *https://www.fih.upt.ro/v4/eng/ https://citt.upt.ro/en/*

**15.**

***Title: DC LINEAR VOLTAGE-SINUSOIDAL SIGNAL CONVERTER WITH ADJUSTABLE FREQUENCY***
***Patent number: 130458/30.05.2022***
***Authors: Gabriel Nicolae Popa, Iosif Popa, Sorin Ioan Deaconu***
***Institution: Politehnica University Timişoara, Faculty of Engineering Hunedoara***
***Category: C***

***Description:*** *The DC linear voltage-sinusoidal signal converter with adjustable frequency provides a periodic sinusoidal signal at the output that depends on the DC voltages applied on two inputs: a DC voltage is applied to one of the inputs, which linearly modifies the frequency of the output signal, and on the other of the inputs applies a DC voltage which linearly changes the amplitude of the signal from the output of the converter. The DC linear voltage-sinusoidal signal converter with variable frequency comprises seven functional blocks: two analogue multiplication circuits, two analogue difference circuits, one non-inverting amplifier and two integrated circuits.*
*The linear DC voltage-variable frequency sinusoidal signal converter has the following advantages:*
*- it has a simple construction (requires only three integrated circuits and a few resistors and capacitors);*
*- it has two active continuous voltage inputs and one output;*
*- the outputs a sinusoidal signal whose frequency depends linearly on the DC voltage applied to one of the inputs;*
*- the amplitude of the output signal can change linearly depending on the DC voltage applied to the other input;*
*- the response time is very low due to the realization of the converter only with analogue components;*
*- the frequency of the output signal is in the range of kHz, the operating range can be tens of kHz, and the amplitude of the output signal is of the order of volts, this circuit can be used for transmitting signals at a distance with a high resolution with harmonic pollution diminished.*
***State of development: experimental prototype***
***Contact: Gabriel Nicolae Popa; Telephone: 0040254207541 Email: gabriel.popa@fih.upt.ro***
***Presentation link: https://uptro29158-my.sharepoint.com/:v:/g/personal/gabriel_popa_upt_ro/EaTTBW3-aH9Pi2jCzUOtrOIBjQi0pLBZjc6UQTIj0yH2tA?e=WCgjpl***

***16.***

***Title: EXPERIMENTAL STAND WITH TWO ARDUINO MODULES FOR SERIAL DATA TRANSMISSION - TEMPERATURE MEASUREMENT***
***Project: laboratory project***
***Authors: Gabriel Nicolae Popa, Corina Maria Diniş***
***Institution: Politehnica University Timişoara, Faculty of Engineering Hunedoara***
***Category: C***
***Description:*** *Sometimes in a project, the number of pins available on a microcontroller development board limits the technical possibilities, e.g. when a large number of sensors and actuators are used. If modules with fewer inputs and outputs are used, it can be useful to ensure distributed operation: to assign to an Arduino (e.g. Nano) the task of monitoring the sensors, while the task of displaying the results is assigned to another Arduino (e.g. Uno). Arduino modules can communicate with each other and with the outside world through the following possibilities: serial communication (integrated into modules), Bluetooth (separate module), network connection (e.g. to the Internet, via separate module), and even infrared (separate module). Data from one Arduino to another can be transmitted via serial communication (to occupy a small number of pins). The serial communication requires two pins of the microcontroller board. For proper operation, the GND (ground) pins for both Arduinos must be connected. The experimental stand*

*contains an Arduino Nano module, an Arduino Uno, a 2x16 LCD shield (connected to the Arduino Uno to display the measured value), a DS 18B20 digital temperature sensor (connected to the Arduino Nano), and two serial transmission warning LEDs (each connected to one Arduino module at a time).*
*With the help of the stand, three variants of serial communication between Arduino modules can be checked:*
*-Rx-Tx communication (standard communication);*
*- communication without dedicated pins (soft serial);*
*- I2C communication.*
*The Arduino Nano transmits the temperature values, measured with the DS18B20 digital sensor, to an Arduino Uno to which an LCD shield is connected to which the measured temperature value is displayed (with two decimal places). For the three types of serial communications, separate programs have been created for each Arduino. The Arduino Nano has a (green) LED that indicates data transmission, and the Arduino Uno has a (red) that indicates data reception.*
***State of development: experimental laboratory prototype***
***Contact: Gabriel Nicolae Popa; Telephone: 0040254207541 Email: gabriel.popa@fih.upt.ro***
***Presentation link: https://uptro29158-my.sharepoint.com/:v:/g/personal/gabriel_popa_upt_ro/EVVwPcHxpTVOkPWMN-HVhbQBxfliPL-kEfOF44PfYXG54w?e=JBVqrx***

***17.***

***Title: SENSORS MONITORING AND DATA LOGGING***
***Patent/project number: laboratory project***
***Author/s: Raluca ROB***
***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: C***
***Description:*** *Proposed system is able to monitor a series of sensors connected to a digital controller programmed for measuring the air temperature and humidity, the ambient lighting and also for commanding different actuators: a water pump using level sensor, a dc motor for a sliding door.*
***State of development: research project***
***Contact: raluca.rob@fih.upt.ro +40762275788***
***Presentation link: https://www.fih.upt.ro/v4/eng/ https://citt.upt.ro/en/***

***18.***

***Title: CONTACTLESS STRAIN MEASUREMENT SENSOR BASED ON AMORPHOUS FERROMAGNETIC MICROWIRES.***
***Patent/project number: Patent app. no.: a20220020. Filed: 19.04.2022/Project no: 20.80009.5007.08.***
***Author/s: Sergiu Zaporojan, Vladimir Larin, Vasile Tronciu, Eugeniu Munteanu, Victor Pavel, Lilian Chicu.***
***Institution: Technical University of Moldova***
***Category: C***

***Description:*** *The contactless strain sensor consists of at least two segments of amorphous ferromagnetic microwires – a sensitive wire and at least one reference wire, mounted on a solid body. When an alternating magnetic field is applied, the sensor responds with impulses induced at the remagnetization. The hysteresis loop and coercive force of sensitive microwire with high positive magnetostriction increase with tensile strain.*

*The parameters of reference microwire do not depend on the deformation. Comparing the magnetic characteristics of the hysteresis loops, the magnitude of deformation is determined. The sensor can be applied in condition-based monitoring of bodies/equipment subjected to mechanical stress.*
*State of development: Laboratory level.*
***Contact:*** *sergiu.zaporojan@fiz.utm.md*
***Presentation link:*** *www.utm.md*

***19.***

***Title: FLEXIBLE MANUFACTURING LINES / LINII FLEXIBILE DE FABRICAȚIE***
***Patent/project number: ISBN 978-606-554-140-5***
***Author/s: Tirian Gelu-Ovidiu***
***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: C***
***Description:*** *The production of natural goods has been the most constant preoccupation of people since antiquity and until now. Over time it evolved and became a permanent and organized activity that helped to satisfy the growing needs of people.*

*The production of goods will continue, but there will be profound changes that are no longer compatible with the current production concepts and methods. The significant development of production systems took place in a relatively short period, in the last hundred years. During this period, the production systems evolved to be able to face the changes in the economic environment. According to the new principles, the production systems begin to be structured in specialized compartments with precise tasks.*

*The production process is fragmented into peace processes, phases, operations, specializing. In this context, the role of machines and equipment becomes predominant, and the role of man is greatly reduced, with only management and execution attributions returning to him. It thus increases the role of creativity, intelligence and spontaneity. It thus increases the role of creativity, intelligence and spontaneity. The main problem of the new, more developed (advanced) systems is to respond to these needs in terms of efficiency and minimal response time.*

*The establishment of advanced production systems was achieved only in strong economies. From the experience accumulated until now, the conclusion emerges that the main advantage of the new production structures is their almost total adaptability to changes in the economic environment. Many times there are similar products on the market but based on completely different production processes.*
***State of development: book***
***Contact:*** *ovidiu.tirian@fih.upt.ro*
***Presentation link:*** *https://www.fih.upt.ro/personal/ovidiu.tirian/*

**20.**

***Title: DRONE WITH IONIC PROPULSION***
***Patent/project number: RO134599 B1***
***Author/s: Arghirescu Marius***
***Institution: "Justin Capră" Association***
***Category: C***
***Description:*** *The invention relates to a drone that can levitate by Biefeld-Brown effect and advances by electric wind, having a metallized bell-shaped part (P), electrically charged positively with a Tesla coil (2), the negative electrode being connected to two electroconductive networks (R, R') from the airfoil (A), the bell (P) also having a magnetic motor (M, M') continued with a homopolar generator (G) feeding a ring transformer (13) connected to a converter (14), connected to a microwave generator (20) and to some air ions generation lasers (21) at the bottom, pulsatingly repelled by the positivized housing of the drone.*
***State of development:***
***Contact:*** *maris3a@yahoo.com*

**21.**

***Title: PARALLEL PARKING UPGRADE FOR ARDUINO BLUETOOTH CAR***
***Patent/project number: Student Project***
***Author/s: Birtok Eugen; Coordinator: Rob Raluca***
***Institution: Politehnica University Timişoara, Faculty of Engineering Hunedoara***
***Category: C***
***Description:*** *This project present some improvements to the Arduino Bluetooth Car project, a 4x4-powered robot that moves commanded and controlled by an Android application and programmed on the open-source MIT App Inventor platform.*
*In the construction of this car were necesarry the following parts:*
- *Arduino Uno development board*
- *Driver for L298N integrated circuit motors connects to Arduino digital pins*
- *HC-05 bluetooth module*
- *Ultrasonic sensor HC-SR04 (to avoid obstacles and parallel parking)*
- *SG90 servomotor (for sensor movement at a certain angle)*
- *DC 12V Battery Pack 3000mAh Rechargeable Lithium Battery Pack*
- *65 mm Rubber Wheel RC Model Tires*

*A function has been programmed for each order. Thus, the Forward () function sends appropriate logic levels to the input pins in the driver, so that the wheels allow forward movement. To enable communication with the bluetooth module, the #include <SoftwareSerial.h> directive in the source code includes retrieving information about the bluetooth transmission in a switch () structure. The novelty consists in the implementation of two functions of modifying the engine speed. For parallel parking I make a function Parking.*
***State of development: prototype***
***Contact:*** *birtok.eugen@gmail.com*
***Presentation link:*** *https://www.fih.upt.ro/v4/eng/*

**22.**

***Title: PLANNING PROCEDURE BASED ON AN ALGORITHM FOR OPTIMAL TASK DIVISION***
***Patent number: OSIM A/00168/2019***
***Author/s: Andreea Cristina IONICĂ, Monica LEBA, Raluca Anamaria DOVLEAC***
***Institution: University of Petroşani***
***Category: C***
***Description:*** *The invention refers to the development of an algorithm that allows the automatic distribution of work tasks in stages of development using an indicator called Offset, and is based on an iterative development cycle.*
***State of development: prototype***
***Contact:*** *pdragos_74@yahoo.com*
***Presentation link:*** *https://www.upet.ro/en/*

**23.**

***Title: UNDERGROUND POSITIONING AND MONITORING SYSTEM BASED ON VISIBLE LIGHT COMMUNICATION TECHNOLOGY***
***Patent number: OSIM A00491/2.07.2018***
***Author/s: Simona Mirela RÎUREAN, Monica LEBA, Andreea Cristina IONICĂ***
***Institution: University of Petroşani***
***Category: C***
***Description:*** *The invention aims to determine the position of the personnel in the underground spaces. The communication is done through a transmission-reception system that uses the visible light of the miner's cap lamp LED.*
***State of development: prototype***
***Contact:*** *pdragos_74@yahoo.com*
***Presentation link:*** *https://www.upet.ro/en/*

**24.**

***Title: METHOD AND ALGORITHM FOR ANTICIPATIVE AUTOMATIC PROTECTION AGAINST OVERCURRENTS IN ELECTRIC INSTALLATIONS***
***Patent number: OSIM A/00246/07.04.2016***
***Author/s: Carol ZOLLER, Dragoş PĂSCULESCU, Gheorghe MARC, Remus DOBRA***
***Institution: University of Petroşani***
***Category: C***
***Description:*** *The invention has as objective a method, respectively an automatic, anticipatory protection algorithm against over-currents, which can be used in electrical installations of any type.*
***State of development: concept***

***Contact:*** *pdragos_74@yahoo.com*
***Presentation link:*** *https://www.upet.ro/en/*

***25.***

***Title:*** *METHOD FOR OPERATIVE CONTROL OF SYMMETRICAL COMPONENTS OF THREE-PHASE ELECTRICITY SYSTEMS*
***Patent number:*** *OSIM 130884/2017*
***Author/s:*** *Carol ZOLLER, Sorina COSTINAŞ, Remus DOBRA, Gheorghe MARC, Dragoş PĂSCULESCU*
***Institution:*** *University of Petroşani*
***Category:*** *C*
***Description:*** *The invention relates to a method of operative control of symmetrical voltage (or current) components in three-phase sinusoidal power systems.*
***State of development:*** *concept*
***Contact:*** *pdragos_74@yahoo.com*
***Presentation link:*** *https://www.upet.ro/en/*

***26.***

***Title:*** *PROGRAMMABLE BLOCK FOR SHEARER AND CONVEYOR CONTROL IN EXPLOSION-PRONE MINES*
***Patent number:*** *OSIM 123641/2015*
***Author/s:*** *Titu NICULESCU, Dragoş PĂSCULESCU, Florian Sorin RIDZI*
***Institution:*** *University of Petroşani*
***Category:*** *C*
***Description:*** *The invention relates to an electronic device with PLC, intended to control the exploitation and transportation processes in underground mining units with explosion hazard.*
***State of development:*** *prototype*
***Contact:*** *pdragos_74@yahoo.com*
***Presentation link:*** *https://www.upet.ro/en/*

***27.***

***Title:*** *PROGRAMMABLE BLOCK FOR DELAY-STAGE CONTROL OF CONVEYORS IN EXPLOSION-PRONE MINES*
***Patent number:*** *OSIM 123640/2015*
***Author/s:*** *Dragoş PĂSCULESCU, Titu NICULESCU, Florian Sorin RIDZI*
***Institution:*** *University of Petroşani*
***Category:*** *C*

***Description:*** *An electronic device intended to organize the process of exploitation in explosion-prone mining operations, which controls four conveyors, in compliance with the starting order and safety rules specified.*
***State of development: prototype***
***Contact:*** *pdragos_74@yahoo.com*
***Presentation link:*** *https://www.upet.ro/en/*

***28.***

***Title: COLLABORATIVE MIND SENTINELS***
***Project number: UPET-3/2021***
***Author/s: Remus Constantin SIBIŞANU, Monica LEBA***
***Institution: University of Petroşani***
***Category: C***
***Description:*** *Collaborative robots that can explore any type of terrain and can learn from each other and they can act like a mesh network to comunicate.*
***State of development: prototype***
***Contact:*** *pdragos_74@yahoo.com*
***Presentation link:*** *https://www.upet.ro/en/*

***29.***

***Title: ALGORITHM BASED DEVELOPMENT OF PETRILA THEME PARK***
***Project number: UPET-4/2021***
***Author/s: Ionela SAMUIL, Andreea Cristina IONICĂ, Monica LEBA***
***Institution: University of Petroşani***
***Category: C***
***Description:*** *A selection algorithm developed and applied to allocate future destinations to the buildings in the former Petrila mine, to transform it into a tourist destination, the Petrila Theme Park.*
***State of development: prototype***
***Contact:*** *pdragos_74@yahoo.com*
***Presentation link:*** *https://www.upet.ro/en/*

***30.***

***Title: NONINVASIVE, SYSTEM FOR HUMAN BODY MOTION CAPTURE***
***Project number: UPET-5/2021***
***Author/s: Arun Fabian PANAITE, Monica LEBA***
***Institution: University of Petroşani***
***Category: C***

***Description:*** *This system uses cameras to capture the motions of a human body, and transmit them to a computer where they are rigged to a 3D human character model, to reproduce the captured motions in real time.*
***State of development: prototype***
***Contact:*** *pdragos_74@yahoo.com*
***Presentation link:*** *https://www.upet.ro/en/*

***31.***

***Title: CONTRIBUTIONS REGARDING THE USE OF NEURAL HEADSET FOR ARTIFICIAL ARM CONTROL***
***Project number: UPET-6/2021***
***Author/s: Sebastian Daniel ROŞCA, Monica LEBA***
***Institution: University of Petroşani***
***Category: C***
***Description:*** *The BCI interface uses the principle of electroencephalography to reproduce the conscious thoughts of a user, in binary code, to control a robotic prosthesis.*
***State of development: prototype***
***Contact:*** *pdragos_74@yahoo.com*
***Presentation link:*** *https://www.upet.ro/en/*

***32.***

***Title: CONTRIBUTIONS TO THE DEVELOPMENT AND CONTROL OF AN EXOSKELETON FOR THE RIGHT ARM***
***Project number: UPET-7/2021***
***Author/s: Marius Leonard OLAR, Monica LEBA, Remus Constantin SIBIŞANU***
***Institution: University of Petroşani***
***Category: C***
***Description:*** *The project represents an autonomous exoskeleton mounted on a human garment, to act the Glenohumeral joint, leading the arm in an area close to the maximum mobility of a healthy human arm.*
***State of development: prototype***
***Contact:*** *pdragos_74@yahoo.com*
***Presentation link:*** *https://www.upet.ro/en/*

***33.***

***Title: A PROTOTYPE FOR THE PROCESS OF PROJECT INTAKE DECISIONS IN NONPROFIT ORGANIZATIONS***
***Project number: UPET-8/2021***
***Author/s: Ibrian Vasile CĂRĂMIDARU, Andreea Cristina IONICĂ***

***Institution: University of Petroşani***
***Category: C***
***Description:*** *The prototype aims at balancing the triple constraint and stakeholder needs in project intakes. The process handles proposals in four steps, targeting a score function, factoring the social result and complying with project contains.*
***State of development: prototype***
***Contact:*** *pdragos_74@yahoo.com*
***Presentation link:*** *https://www.upet.ro/en/*

## D - Automotive, Space science, Aviation, Ships, Mechanics

**1.**

***Title: ACTUATOR WITH TELESCOPIC SLIDERS***
***Patent/project number: Patent OSIM: RO130517 -B1/30.07.2021***
***Author/s: Vasile Năsui***
***Institution: Technical University of Cluj-Napoca***
***Category: D***
***Description:*** *Telescopic slide actuator is equipped with a gear motor that drives a transmission cable attached to a sliding support which slides another slide. The slide has a transmission cable that is connected to the body of the actuator lower branch and upper branch to the next slide.*

*Extension mechanism is obtained by simultaneous translational motion of both runners with a race speed and increased, having a small size and constructive simplicity. Electromechanical linear actuators are superior to other elements of actuation or control of the movements of some mechanisms.*
***State of development: prototype***
***Contact:*** *Liliana.Pop@staff.utcluj.ro*
***Presentation link:*** *https://research.utcluj.ro/index.php/domenii-de-cercetare.html*

**2.**

***Title: AUTOMATIC THERMAL MANAGEMENT DEVICE OF A BATTERY THAT EQUIPS AN ELECTRIC VEHICLE***
***Patent/project number: Patent application OSIM: A/00403/14.07.2021***
***Author/s: Florin Mariasiu, I.C. Thomas Buidin***
***Institution: Technical University of Cluj-Napoca***
***Category: D***
***Description:*** *The problem solved by the invention of the automatic thermal management device of a battery equipped with an electric vehicle is the maintenance of a predetermined temperature (desired by the manufacturer according to the dynamic performance of the electric vehicle) inside the battery housing by natural ventilation (with air from external environment) of the electrochemical cells, due to adjustable ventilation slots as opening according to the thermal stress inside the battery housing.*

*The automatic thermal management device of a battery equipped with an electric vehicle is characterized in that the opening or closing of the ventilation slots is done sequentially by a bimetallic lever, depending on the temperature inside the battery, without external energy consumption.*
***State of development: prototype***

***Contact:*** *Liliana.Pop@staff.utcluj.ro*
***Presentation link:***
*https://research.utcluj.ro/tl_files/research/Research%20Domain/Mechanical%20Engineering/TestEcoCel_Burnete.pdf*

**3.**

***Title: THERMOPLASTIC COMPOSITE SELECTION METHOD FOR POWERING AN AUTOMATIC THERMOFORMING LINE***
***Patent/project number: Patent application OSIM: A 2021 10063***
***Author/s: Cornel Ciupan, Ioan Filip, Emilia Ciupan, Mihai Ciupan***
***Institution: Technical University of Cluj-Napoca***
***Category: D***
***Description:*** *The method involves dividing the products into classes with a representative benchmark, then static studies are performed by the FEA method, the minimum wall thickness is determined so as to meet simultaneously the requirements of the FOS and displacement, for each available composite material, after which determines the cost of the section. Select the composite that offers the minimum section cost, and for any other part of the part group representative, the FEA analysis will be made only with the material selected for the representative part and the wall thickness that satisfies the technical restrictions will be determined.*
***State of development: prototype***
***Contact:*** *Liliana.Pop@staff.utcluj.ro*
***Presentation link:*** *https://research.utcluj.ro/index.php/industrial-engineering-and-management-140.html*

**4.**

***Title: RECYCLING USED BATTERIES IN THE CONTEXT OF THE CIRCULAR ECONOMY OF THE INDUSTRIAL ERA 4.0***
***Patent/project number: PhD thesis***
***Author/s: RUS Ioan Alexandru; Mentors: NICOLAE Viorel, BIRTOK-BANEASA Corneliu***
***Institution: University of Pitesti, Faculty of Mechanics and Technology; Politehnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: D***
***Description:*** *Electric car batteries are a challenge for the world's electrified future. Automakers are investing billions in electrification, with the hope that the next generation of vehicles will be cleaner than their gasoline-powered predecessors. The International Energy Agency estimates that there will be 148-230 million battery-powered vehicles worldwide, representing up to 12% of the global car fleet. Used batteries can be an opportunity for a greener car future. Global demand for batteries is expected to grow 14-fold by 2030, and the EU could account for 17% of this demand. This is mainly due to the evolution of the digital economy, renewable energy and low-carbon mobility. The increasing use of battery electric vehicles will make this market a strategic one globally. Li-ion battery recycling concerns exist in China, South Korea, Japan, the US, Canada and the European Union. Recycling processes include several stages:*

*mechanical (shredding, cutting), pyrometallurgical (melting, pyrolysis) and hydrometallurgical, through which useful metals are separated and recovered. Currently, the amount of batteries that end up being recycled is estimated at 100,000 tons. This leads to the creation of an important market for recyclers or opportunities for material companies to become recyclers. The recycling of batteries from electric vehicles alone could reach 10% of the total recyclable volume in 2030, higher than the contribution of the mining sector.*

***State of development: PhD research***

***Contact:*** *alecsandru.rus@yahoo.com*

***Presentation link:*** *https://www.upit.ro/ro/academia-reorganizata/facultatea-de-mecanica-si-tehnologie-2*

***5.***

***Title: SONOTRODE FOR ULTRASONIC APPLICATIONS***

***Patent/project number: patent no. A/00335 / 15.06.2021***

***Author/s: Nicuşor-Alin SÎRBU, Gabriela-Victoria MNERIE***

***Institution: National Research & Development Institute for Welding and Material Testing - ISIM Timişoara, Romania***

***Category: D***

***Description:*** *The patent proposal presents innovative constructive solutions for sonotrodes that are economically improved but are similar in geometry and manufacturing method. According to the patent request, the sonotrode is manufactured by combining two subassemblies through the friction stir welding process (FSW). Object of the invention: development of innovative sonotrodes for industrial applications. According to the patent request, the sonotrode is manufactured by combining two subassemblies, especially through the Friction Stir Welding (FSW) process.*

*Advantages:*

- *Developing ultrasonic tools (sonotrodes) that are economically improved, while maintaining their technical performances;*
- *Increasing the lifetime of the ultrasonic tools (sonotrode) by replacing the deteriorated active zone of the sonotrode.*

***State of development: concept***

***Contact:*** *isim@isim.ro* ***+40256491831***

***Presentation link:*** *www.isim.ro*

***6.***

***Title: STUDY OF IN-CYLINDER COMBUSTION PRESSURE CHARACTERISTICS FUELED WITH METHYL ESTER FOR SPLIT INJECTION WITH SQUARE AND TANGENTIAL PISTON WITH 0% AND 10% EGR***

***Patent/project number: PhD thesis***

***Author/s: Shrikant Vishnu Baste, Dr. Sudhakar Umale***

***Institution: Sardar Patel College of Engineering Mumbai, India***

***Category: D***

***Description:*** *Square figure 2(A) and tangential figure 2(B) groove top piston were used to study the combustion characteristics of Methyl Ester. The CR for a single-cylinder CI was maintained at 18. Trinity methyl ester (behada+chicken fat oil+turmeric oil) was blended with diesel fuel. The blend proportion was kept at 20%, representing B20 and B00 indicating pure diesel fuel. In order to control and reduce the harmful emission of NOx EGR technology was used up to an extent of 10% to improve the combustion quality. The split injection strategy was used to inject methyl ester. Split injection gives better atomization of fuel and the more surface-to-volume area will be covered. The split injection angle for pilot injection at 7 deg bTDC with a mass of pilot injection 27% and main injection fuel of 73% mass at 14 deg bTDC timing. Figure 1 represents In-cylinder combustion pressure and crank angle. The combustion behavior, cylinder pressure peak, and combustion duration can be studied from the graph. It can be seen in figure 1 that the cylinder pressure curve for fuel B20 with tangential groove piston shows a steep slope with maximum cylinder pressure of 83 bar with 0% EGR followed by EGR10% of B20 fuel of 81bar. Further, B00 with 0% EGR and 10% EGR have shown inferior results compared to the former. Also, the effect of the split injection strategy with B20 and EGR10% has improved combustion with rapid premix, re-burning of fuel with EGR10%, and oxygenated fuel combustion of B20 fuel. The improved combustion has reduced the NOx, CO, and HC levels which helped to achieve complete combustion.*
***State of development: experimental study***
***Contact:*** *baste.shrikant@gmail.com*
***Presentation link:*** *https://www.spce.ac.in/rnd_1.php*

*7.*

***Title: EXPERIMENTAL STAND FOR AUTOMOTIVE CAN NETWORK***
***Patent/project number: laboratory project***
***Authors: Gabriel Nicolae Popa, Corina Maria Diniş***
***Institution: Politehnica University Timişoara, Faculty of Engineering Hunedoara***
***Category: D***
***Description:*** *The introduction of automotive data transmission networks (which replaced the wiring with many conductors), reduced the cost, increased the reliability, and reduced the complexity and weight of the wiring. CAN is a high-integrity serial bus system for networking intelligent devices, it emerged as a networking standard in automobiles in 1993 (it became the international standard known as ISO 11898). The benefits of using CAN networks are: it is a simple network (two conductors, it does not use the ground for data transmission - the car body), it ensures communication between several (different) equipment, and each message has a priority. An experimental laboratory stand has been created for simulations and study of car CAN networks. The stand contains a simulation block with digital and analogue inputs (which simulates a normally open switch - kick down acceleration and normally closed switch for the door; lighting measurement for light control; fuel level measurement; ambient temperature measurement; car battery voltage measurement) connected to an Arduino Uno (simulates an ECU 1), which is connected to a MCP 2515 CAN, which is a node for the CAN network that connects via two wires (CAN-L, CAN-H) to another MCP 2515 CAN node in connection with an Arduino Nano (simulates ECU 2). A laptop is connected to the Arduino Nano (ECU 2, to display the information on several lines of information), through the serial port, to analyze the data transmitted from the Arduino Uno (ECU 1). To achieve communication, different programs have been implemented for the two Arduinos. With the help of the experimental stand, studies (related to data integrity) can be carried out on the speed of data transmission (which can be changed*

*through Arduino programs), the length of the CAN cable (short and long), the importance of the resistors (120 W) at the ends the cable when transmitting the information.*
***State of development: experimental laboratory prototype***
***Contact: Gabriel Nicolae Popa; Telephone: 0040254207541 Email: gabriel.popa@fih.upt.ro***
***Presentation link: https://uptro29158-my.sharepoint.com/:v:/g/personal/gabriel_popa_upt_ro/EVQtugTMIYlDuEsrZsxGBHUBO-MDcycWOLOUBv8NxUqgUQ?e=w6lisO***

***8.***

***Title: CAST IRON USED IN ROLLING STOCK BRAKING SYSTEMS***
***Patent/project number: PhD Thesis***
***Author/s: Bucur Flavius, Socalici Ana***
***Institution: Politehnica University Timişoara, Faculty of Engineering Hunedoara***
***Category: D***
***Description:*** *The brake blocks of the rolling stock are obtained by casting from phosphorous cast iron P10 type In the structure of phosphorous cast iron, a phosphorous ternary eutectic is formed, called steadite, consisting of perlite, cementite and iron phosphide, it is distributed at the limits of the grain in the form of isolated separations, discontinuous network or continuous network, depending on the phosphorus content. Phosphorous eutectic is characterized by a high hardness and high fragility, which is why it has a great influence on the properties of cast iron. Experimental research has focused on the influence of the chemical composition on the mechanical hardness characteristics of phosphorous cast irons. The experimental data were processed in the Matlab computer program, obtaining a series of graphical and analytical correlations. The regression surfaces and level curves obtained allow the determination of the optimal ranges of variation of the chemical composition of the cast irons in order to obtain a hardness in the technological range. In order to obtain a hardness in the range 197-255 HB, the chemical composition of the cast iron must vary within narrow limits: C = 2.95-3.2%, Mn = 0.6-0.7%, Si = 1.45- 1.95%, S = 0.06-0.09%; P = 0.85-0.95%.*
***State of development: This paper was financially supported by the Project "Network of excellence in applied research and innovation for doctoral and postdoctoral programs/ InoHubDoc", project co-funded by the European Social Fund financing agreement no. POCU/993/6/13/153437***
***Contact: flavius_bucur@yahoo.com***
***Presentation link: https://www.fih.upt.ro/v4/eng/***

***9.***

***Title: SOLUTIONS FOR BREED THE AVAILABILITY OF THE PARALLEL GANG SHEARS ASSIGNED FOR CUTTING THE METALLURGICAL PRODUCTS***
***Patent/project number: scientific paper***
***Author/s: ADINA BUDIUL BERGHIAN***
***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: D***
***Description:*** *In this paper proposed some solutions for the decrease of the unschedule stops of the 8000Kn shear with parallel gang assigned for cutting the metallurgical products. Analysis of data collected through*

*observation of operation/failure of the shear allow construction of the so-called Pareto diagram, which is an analysis and assessment method that at the same time allow identification of several failures on which should be droved with priority. Based on the study which has been performed is proposed solutions meant to increase the availability of the 8000 kN shear, existent in exploitation.*
***State of development: research project***
***Contact:*** *adina.budiul@fih.upt.ro*
***Presentation link:*** *https://www.fih.upt.ro/v4/eng/*

***10.***

***Title: DESIGNING A LABORATORY STAND FOR FIXATING FORCES OF WORKPIECES IN TIGHTENING MECHANISMS USING WEDGE AND PLUNGERS***
***Patent/project number: PhD thesis***
***Author/s: Vergu Constantin-Alexandru***
***Institution: „Lucian Blaga" University of Sibiu, Faculty of Engineering***
***Category: D***
***Description:*** *The project proposes a device specifically designed to study the fastening forces of parts in clamping mechanisms using wedges and pistons. It consists of a motherboard (1); a force sensor (2); a supporting body (3); the stem (4); four pistons (5); four springs (6); four cylinders (7); four wedges (8); a conical cord (9); a threaded shaft (10); a handle (11); the part on which the study is being carried out (12) and some screws and fixing pins.*
*The semi-finished product is fixed by operating the threaded shaft (10) using the handle (11) and the part (12) to be examined. It moves to the cone (9), which further engages the pistons (5), with the help of which the attachment is made. The clamping force is determined by the force sensor (2) and displayed on a computer monitor.*
***State of development: research project***
***Contact:*** *vergualex@yahoo.com*
***Presentation link:*** *https://inginerie.ulbsibiu.ro/*

***11.***

***Title: ELECTRIC ENGINES VS INTERNAL COMBUSTION ENGINES***
***Patent/project number: student project***
***Author/s: Popescu Alin-Andrei, Samson Karina; Coordinator: BIRTOK-BANEASA Corneliu***
***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: D***
***Description:*** *This project presents a comparative study regarding the advantages and disadvantages of using electric cars compared to classic cars equipped with internal combustion engines. When it comes to choosing a new car you are faced with the ultimate decision, gas or electric. There are so many factors to consider that it would be a lie to say there is a clear answer that everyone would agree with, but here is a breakdown of the most important considerations which should allow you to make an informed call. First of all, acceleration. Electric cars can accelerate far more quickly than internal combustion engine vehicles because they generate instantly available torque and they are able to deliver it to the weels more*

*efficiently. For IEC powered cars, maximum torque is achieved at the point where the combination of fuel, air and spark coincide to produce the largest vertical force. The IEC massive drawback here is the lag in reaching maximum torque, starting from low RPM the engine speed has to slowly rise to it's maximum torque threshold. In case of electric motors, maximum torque is produced from the get-go. About the price tag, in relation to it, gas cars are currently a lot less expensive than other options. The average cost of an electric car is about 19.000$ higher than a IEC-powered one altough electric vehicles may cost more, but they have lower maintance cost than a IEC vehicle.*
***State of development: exploratory research***
***Contact:*** *a_popescu71@yahoo.com karinamangu@yahoo.com*
***Presentation link:*** *www.corneliugroup.ro https://www.fih.upt.ro/v4/eng/*

***12***

***Title: TECHNOLOGICAL DEVICE FOR CLAMPING PARTS ON MACHINE TOOLS***
***Patent/project number: student project***
***Author/s: Pinca-Bretotean Alexandru Mihai***
***Institution: University Politehnica Timişoara, Faculty of Mechanics***
***Category: D***
***Description:*** *The part holder device designed represents the mechanical interface between the machine tool and the semi-finished product. It performs the relative positioning of the semi-finished product to the cutting tool in the technological process of mechanical processing by cutting and control.*
***State of development: 3D part model***
***Contact: +40721221976***
***Presentation link:*** *http://www.mec.upt.ro/*

***13.***

***Title: CHARGE/DISCHARGE/CHECK CHARACTERISTICS OF NI-MH AND LI-ION BATTERIES***
***Patent: Didactic simulator***
***Authors: Gidali Adrian, Simon Florin***
***Institution: Sc Garage Training SRL***
***Category: D***
***Description:*** *Didactic simulator Hybrid Vehicle System (Toyota HSD - Hybrid Synergy Drive - serial/parallel), dedicated to the study and understanding of the operating modules of the various configurations existing in the structure of electric and hybrid vehicles:*
*-functional electric motors/generators (MG1/MG2, synchronous-permanent magnets.*
*- PowerSplit gearbox mechanism,*
*- MG1 and MG2 control unit,*
*-inverter/converter,*
*- functional air conditioning electric compressor,*
*-high voltage battery+ECU BMS - Battery Management System.*
*- Li-ion 50.4V battery pack with built-in BMS (Porsche e-Formula).*

*Practical application:*
*-measurement of activation voltages/currents for HV electric motors.*
*-determining the state of the stator windings by the method of generating alternating currents.*
*-measuring resistances using the high-precision Milli-Ohm-meter.*
*-determining the integrity of high voltage insulations by using the giga-ohmmeter.*
*- determination of current losses in the HV installation, using the method of voltage drops and unwanted currents.*
*-determining the state of health (SOC-State of Health) of the modules in the high-voltage battery.*
*- performing the balancing operation (balancing) of the HV battery modules.*
*-checking the messages from the CAN-bus network between the control units of the HV system.*
***State of development: product***
***Contact:*** *cursuri.garagetraining@gmail.com*
***Presentation link:*** *https://www.facebook.com/adrian.gidali*

***14.***

***Title: Mercedes-AMG ONE***
***Patent/project number: Student project***
***Author/s: Certejan Vlad-Nicolae-Cosmin, Cătană Andrei-Alexandru; coordinators: BIRTOK-BANEASA Corneliu, BUDIUL-BERGHIAN Adina***
***Institution: Polytechnic University of Timisoara, Faculty of Engineering Hunedoara***
***Category: D***
***Description:*** *Since the birth of Formula 1, engineers have been dreaming of bringing the supreme technology to the streets.*

*Mercedes-Benz, a brand of the Mercedes-Benz Group, has been involved in Formula One as both team owner and engine manufacturer for various periods since 1954.*

*The Mercedes-AMG Petronas F1 Team, which is based in Brackley, England, and possesses a German licence, as of 2022 majority owned by the Mercedes-Benz Group with Toto Wolff having a significant shareholding.*

*Mercedes returned to Formula One in 1994 as an engine manufacturer in association with Ilmor, a British independent high-performance autosport engineering company, which developed their engines.*

*The company won one constructors' title and three drivers' titles in a works partnership with McLaren which lasted until 2009. Mercedes-Benz works on a vehicle that is inspired by the Formula 1 engine technology, peppered with superlatives road-legal racing car to emerge from Affalterbach.*

*Now the time has come. Here it is the Mercedes-AMG ONE. This car is a two-seater and will transfer the latest and most efficient Formula 1 hybrid technology almost like that one of the track, but this will be on the road.*

*The performance hybrid will produce over 1,000 horsepower at a maximum speed of over 350 km/h.*
***State of development: exploratory research***
***Contact:*** *vlad.certejan@gmail.com*
***Presentation link:*** *https://www.facebook.com/vlad.certejan*

**15.**

***Title: GOLF 4 1.9TDI. MY PROJECT FOR MORE HORSEPOWER***
***Patent/project number: Student Project***
***Author/s: Ardeu Răzvan Antonio; coordinators: coordinators: BIRTOK-BANEASA Corneliu, BUDIUL-BERGHIAN Adina***
***Institution: Politehnica University Timişoara, Faculty of Engineering Hunedoara***
***Category: D***
***Description:*** *My project starts with buying a new car, a simple Volkswagen Golf 4 with a 1.9Liter Diesel engine. Stock, it measured 116 horsepower (AJM engine code).*
*This engine has a very good reputation in terms of modifying it for more horsepower as well as a very good reliability.*
*The first things I did to the car were to make sure that the engine is in very good condition, so I changed the following parts for maintenance:*
*-Timing belt;*
*-Camshaft lifters upgrade;*
*-Camshaft upgrade;*
*-Cylinder-head bolt set upgrade;*
*- Vacuum hoses.*
*After that changes, I decided that it is the time to do some major upgrades to increase the cars` horsepower, stability and look. I started by replacing the stock exhaust with a new one that doesn`t have catalytic converters and the muffler.*

*The downpipe is 63mm wide, and the rest of the exhaust is 60mm wide. After that, I changed the stock suspension with a Ta-Technix sport one. This modification greatly increases the stability of the car and also lowers it, making the car look way better.*

*The next modification was to change the stock turbocharger (VNT15) with a bigger one from a 2.7Liter Diesel Audi (GTB1756VK). This bigger turbo helps with providing more horsepower. This new turbocharger needs to be cooled and the stock intercooler can`t do the job on such a big turbocharger, so replacing the stock intercooler was necessary.*

*I bought a TurboWorks bigger intercooler (550x230x63), but this new one couldn`t fit in the original position. So I chose to place it at the front of the car, behind the front bumper. The stock clutch can`t support so much power, so it also needed a change.*

*I decided to go from a double mass flywheel to a single mass flywheel, but the rest of the clutch parts are also brand new. This new flywheel is 7kg ligher than the stock one, so the car will have a faster acceleration.*

*After all this modifications and a new software upgrade, the car measures 250 horsepower and 500nm of torque on the dyno test. In the near future, I will do a lot more modifications to the car.*
***State of development: Prototype - Tuning***
***Contact:*** *razvan.antonio64@gmail.com*
***Presentation link:*** *https://www.facebook.com/razvan.ardeu.3* *https://www.fih.upt.ro/v4/eng/*

**16.**

***Title: GOLF 6 GTI EDITION 35. THE BEGINNING OF MY PROJECT***
***Patent/project number: Student Project***
***Author/s: Răbulea Ștefan; coordinators: coordinators: BIRTOK-BANEASA Corneliu, BUDIUL-BERGHIAN Adina***
***Institution: Politehnica University Timișoara, Faculty of Engineering Hunedoara***
***Category: D***
***Description:*** *My project is about the first steps that you must do in order to start tuning a 2.0Liter TFSI engine from the Volkswagen group and how to increase its power. The Volkswagen Golf 6 GTI Edition 35 is a special edition of the normal Golf 6 GTI, the anniversary for 35 years of the Golf GTI. It comes with the 2.0L engine from the Golf 6 R that outputs 235 horsepower (30hp less than the R to differentiate them). It also has a different turbocharger (K04) than it`s normal version, gaining 25 more horsepower. The car is a forward-wheel-drive (FWD), but the Edition 35 also has a limited slip differential which helps with the traction. This specific car has a DSG automatic gearbox. My goal is to maintain the car in the best condition while I`ll do some modifications to gain more horsepower and a better exterior look.*
*My project starts with doing the basic things when buying a second-hand vehicle:*
*-Engine oil and filters change;*
*- We also cleaned the lower crankcase and it looks like new;*
*-New DSG oil (for the gearbox) and filter;*
*-New timing chain, new timing belt, new chain tensioner;*
*-New spark plugs and the red ignition coils;*
*-New PCV Valve;*
*After the maintenance service, we also did some modifications for extra horsepower:*
*-Remus sport exhaust system*
*Sport exhaust systems provide more horsepower because the exhaust gases are released at a higher speed. We installed a Remus exhaust system from the middle of the car to the back of it. The downpipe is still the original one because if we would have changed it, the car would have been too noisy for a daily-driver. The sound was also changed by this Remus exhaust, it`s nicer and a bit louder than before.*
*This exhaust also has a sport catalytic converter with 200 cells, so the car still respects the strict EU regulations. This 2.0L TFSI engines come with balancers incorporated in the oil pump. Their role is to reduce engine vibrations and are operated by a sprocket which is rotated by the oil pumps chain. But the bad part is that if this balancers break down, which can happen at any point, the chain will stop working, so the engine will no longer receive oil and it will break down. The solution to this problem is to change the sprocket which makes the balancers work with a new aftermarket one that doesn`t operate the balancers. This modification will greatly increase the reliability of the engine and will also add a few more horsepower, because the oil pump will now function without the balancers resulting in the chain rotating much easier. I bought the new sprocket from VisMotorsport. We also changed the oil pumps chain with a new one, because at the end of the day it`s a chain and it loosens with time.*
***State of development: Prototype - Tuning***
***Contact:*** *rabuleastefan@gmail.com*
***Presentation link:*** *https://www.facebook.com/stefan.rabulea https://www.fih.upt.ro/v4/eng/*

*17.*

***Title: AUTOMOTIVE TUNING HISTORY***
***Patent/project number: student project***
***Author/s: Author: GROSU Denisa Valentina; Coordinator: BIRTOK-BANEASA Corneliu***
***Institution: Technological High School "Grigore Moisil" Deva***
***Category: D***
***Description:*** *Tuning is basically as old as the automotive industry, if you consider the various decorations on horse saddles and the improvement of carriages, you can risk the statement that he is even older than the automotive industry. However, it was only the popularization of the car as a means of transport that influenced the development of this industry. Car tuning appeared almost immediately and went through many stages. Tuning was associated with adapting cars to individual needs or it met the owners' aesthetic needs. Hot rods are one of the more characteristic examples. These types of light and tuned vehicles come from cars modified by American alcohol smugglers of the Prohibition era. They needed vehicles to transport contraband that would enable them to escape from law enforcement. Their impact on the automotive industry was twofold. On the one hand, he laid the foundations for the style that is still popular today, and on the other, the smugglers' races have become the starting point for the birth of the Nascar series and oval races. The next stage of tuning were lowriders, which also in the United States began to appear at the turn of the 1940s and 1950s. Reduced to the limit, popular cars among Latin American youth gained even more interest in the late 1980s and early 1990s when they appeared in American rap music videos. A car leaving the factory will usually be a relatively convenient tool to move from point A to points B and C. However, this can be done faster and more efficiently. Series production forces producers to make certain concessions. Rally and racing teams know this. By preparing their vehicles for winning they improve the factory, and we can later apply some of their experience and knowledge to our cars. Engineers, competing with other teams, are developing increasingly better ways of extracting power from engines. The tuning also changes according to these advances. Several revolutionary solutions have emerged over the years. An example would be turbochargers or injection systems commonly used today. Although this has not always been the case, today hardly anyone except enthusiasts plays in the adjustment of carburetor or ignition angle. Because the engine's operation has been controlled by increasingly advanced computers for years, tuners also use advanced technologies in their work. Today, the use of chiptuning has at least two aspects. In the advanced version, it is the next stage of work on engine modifications.*
***State of development: exploratory research***
***Contact:*** *denisag066@gmail.com*
***Presentation link:*** *https://www.ltgmoisildeva.ro/*
*https://www.facebook.com/profile.php?id=100010226460955*

*18.*

***Title: EXPERIMENTAL STAND FOR THE STUDY OF HELICAL CONVEYORS***
***Patent/project number: laboratory experimental teaching stand***
***Author/s: Pinca-Bretotean Camelia***
***Institution: Politehnica University of Timişoara, Faculty of Engineering Hunedoara***
***Category: D***

***Description:*** *The experimental stand is intended for the study in laboratory of helical conveyors in order to optimize their parameters to obtain high productivity and low energy consumption. It consists of a helical conveyors, electric motor, reducer, shoe brake with electromagnet and short stroke.*
***State of development: laboratory prototype***
***Contact: +40732165956***
***Presentation link:*** *http://www.fih.upt.ro/v4/*

***19.***

***Title: STUDY AND ANALYSIS OF SANDWICH PANELS FOR CABIN ROOFS IN CONSTRUCTION FIELD***
***Patent/project number: PhD thesis***
***Authors: Bleotu Robert-Marian, Preda Cosmin***
***Institution: "Lucian Blaga" University of Sibiu***
***Category: D***
***Description:*** *The aim of this study is to replace the classic cabin roofs with lighter roofs and better material properties. Simulations of hitting the sandwich plate with a moving object, by creating a simulation with a finite element method, were performed. A first objective of this work is to adapt different types of cells and analyse them in terms of energy absorption while a compressive force is applied. The best result in terms of values obtained have been further used in the construction of the sandwich plate's core. The second objective is the static analysis of sandwich plates that contain cells and walls of different thicknesses. Simulations of hitting the sandwich plate with a moving object, by creating a simulation with a finite element method, were performed. Five tube models with different cross-sections: circle, square, hexagon, triangle and polygon. The material used to make the tubes is Aluminum 6063, and the wall thickness is 1 mm. All tubes were constructed with a height of 20 mm. ADVANTAGES: The roof model made of sandwich panel presents a major improvement for the safety of operators who use construction equipment in a dangerous environment.*
***State of development: scientific paper***
***Contact:*** *robert.bleotu@ulbsibiu.ro* ***+40761012110***
***Presentation link:*** *https://www.ulbsibiu.ro/ro/*

***20.***

***Title: MACPHERSON SUSPENSION STUDY THROUGH NUMERICAL SIMULATIONS***
***Patent/project number: PhD thesis***
***Authors: Preda Cosmin, Bleotu Robert-Marian, Pinca-Bretotean Camelia***
***Institution: "Lucian Blaga" University of Sibiu, Politehnica University of Timisoara***
***Category: D***
***Description:*** *The purpose of this dynamic study by numerical simulations of the MacPherson strut suspension is to highlight the dynamic differences between the stock and heavy MacPherson suspension duty for the Volkswagen Jetta. One of the specific objectives of the paper is to compare the two types of springs, the stock with which the car is equipped at the factory and the modified one, the heavy duty variant. The second specific objective is to compare the two types of springs in relation to the two heights of the*

*speed limiter (5 and 15 centimeters,) and the two types of tires (175/65 / R14, 195/65 / R15). The third objective of this paper is to perform a comparative analysis of the main components of a shock absorber assembly, statically through tests. The analysis of the displacement of the wheels with parallel displacement will be performed. FEA: Finite element analyses will be performed for the main components that make up the shock absorber assembly. These analyses are of significant importance for the entire suspension assembly, as it is subjected to high forces during its operation, once mounted on the vehicle.*
***State of development: scientific paper***
***Contact:*** *cosmin.preda@ulbsibiu.ro* ***+40736646553***
***Presentation link:*** *https://www.ulbsibiu.ro/ro/*

**21.**

***Title: MOTO CROSS ENDURO BETA by RAZVAN***
***Patent/project number: student project***
***Author/s: Magdut Razvan Dorian; Coordinator: BIRTOK-BANEASA Corneliu***
***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: D***
***Description:*** *Beta motorcycles are known especially for enduro, cross and trial models. Beta, of Italian origin, is distinguished by the production of its own engines. Beta made a name for itself when in 1997 the brand launched its first enduro Beta RR 50. At first, small mechanical as well as electrical, aesthetic problems were solved by replacing the damaged parts with some new ones. In the end, it was painted to have a more pleasant appearance and to extend the life of the motorcycle. The result is a special one.*
***State of development: prototype***
***Contact:*** *razvanmagdut69@yahoo.com*
***Presentation link:*** *https://www.fih.upt.ro/v4/eng/*

**22.**

***Title: TRACTOR SAME CORSARO70 by LUCIAN***
***Patent/project number: student project***
***Author/s: Henţiu Lucian Nicolae; Coordinator: BIRTOK-BANEASA Corneliu***
***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: D***
***Description:*** *Beta motorcycles are known especially for enduro, cross and trial models. Beta, of Italian origin, is distinguished by the production of its own engines. Beta made a name for itself when in 1997 the brand launched its first enduro Beta RR 50. At first, small mechanical as well as electrical, aesthetic problems were solved by replacing the damaged parts with some new ones. In the end, it was painted to have a more pleasant appearance and to extend the life of the motorcycle. The result is a special one.*
***State of development: prototype***
***Contact:*** *razvanmagdut69@yahoo.com*
***Presentation link:*** *https://www.fih.upt.ro/v4/eng/*

**23.**

***Title: Implementation of SMART AIRPORT in King Abdulaziz Airport, Jeddah, Saudi Arabia***
***Patent/project number: Student Project***
***Author/s: Bashair Alghamdi, Taghreed Alqarni, Ezdihar Aljarrash; Supervised by: Dr. Neyara Radwan***
***Institution: King Abdulaziz University, Saudi Arabia***
***Category: D***
***Description:*** *Airport digital transformation process is a continuous improvement process called "Digital Maturity Model" and it identifies four stages that an airport can go through,*

- *Stage1: Where most of the processes are performed manually by staff.*
- *Stage2: When digital technologies such as check-in, security control and passenger information system begin to be used.*
- *Stage3: Digital technologies are widely used in most airport processes and to add value to airport functions beyond basic operational requirements such as ecommerce, self-service check-in…etc.*
- *Stage4: Known as 'Smart Airport' where value is created from data that is captured and shared with key stakeholders and used in real time via smart data functionality.*

*Main airports in Europe, USA, Middle East, and Asia are well-equipped with new technologies and ready for digital transformation while some of the airports in developing countries are still struggling with the traditional airport infrastructure & processes.*

*Airports Council International (ACI) has prepared a document called "The Airport Digital Transformation Best Practice" which includes a set of recommendations and solutions ready for implementation for airports to be digital ready.*

*Airports Council International (ACI) has prepared a document called "The Airport Digital Transformation Best Practice" which includes a set of recommendations and solutions ready for implementation for airports to be digital ready, starting from the easiest one which is "Free Wifi".*
***State of development: Moderate***
***Contact:*** *nrhassan@kau.edu.sa*
***Presentation link:***
*https://drive.google.com/drive/folders/1n1oOo_tuUAGy3FAWZpoBI3jxjH4P1HJT?usp=sharing*

**24.**

***Title: MODULAR AND RECONFIGURABLE STRUCTURE FOR A ROUTER GANTRY CNC MACHINE***
***Patent application number: A/10073/2022***
***Author/s: Cornel Ciupan, Claudiu-Ioan Rusan, Mihai Ciupan***
***Institution: Technical University of Cluj-Napoca***
***Category: D***
***Description:*** *The invention relates to a mechanical structure for a router gantry machine. The structure of the machine, made of extruded aluminum profiles, consists of two upright beds (M) connected by connecting elements (5) and a table (B) that can be placed at different heights, the uprights (M) having the*

*guides placed at the top on which a G gantry moves, in the shape of a straight beam, which provides increased rigidity compared to a "U" shaped gantry.*
***State of development: Prototype***
***Contact:*** *cornel.ciupan@muri.utcluj.ro*
***Presentation link:*** *https://www.utcluj.ro/en/*

**25.**

***Title: INTENSIFIER SYSTEM FOR HIGH PRESSURES***
***Patent application number: RO131458-B1/30.10.2019***
***Author/s: Cornel Ciupan, Emilia Ciupan, Rares Petruş***
***Institution: Technical University of Cluj-Napoca***
***Category: D***
***Description:*** *The invention relates to an intensifier system for high pressures, which can be used in the manufacturing of water jet cutting machines or in other industrial applications requiring high pressures. ccording to the invention, the system consists of the following components:*
*- a sonic generator comprising a camshaft which moves a rod that pushes on a membrane fixed with some screws between a lower casing and an upper casing that generates pressure waves in a liquid (oil) found in the pipe connected to the sonic amplifier;*
*- a sonic amplifier made of a chamber having the membrane (D-oil) coupled, by a rod to another membrane (d-water), where the pressure waves generate a reciprocating motion of the two membranes, the pressure amplifying ratio being given by the square of the ratio between the diameters (D/d).*
*The system is recommended for waterjet cutting machines and offers the following advantages: technological and constructive simplicity; high reliability and easy maintenance; high volumetric efficiency due to avoiding leakage losses through seals; possibility of making membranes from materials resistant to corrosion or to different chemical agents, depending on the specific application.*
***State of development: prototype***
***Contact:*** *cornel.ciupan@muri.utcluj.ro*
***Presentation link:*** *https://www.utcluj.ro/en/*

**26.**

***Title: METHOD FOR PRODUCING MECHANICAL WORK AND ROTARY HEAT ENGINE FOR APPLYING SAID METHOD***
***Patent number: RO129731 (B1)/2020-03-30***
***Author/s: Cornel Ciupan, Mihai Ciupan, Emilia Ciupan***
***Institution: Technical University of Cluj-Napoca***
***Category: D***
***Description:*** *The invention solves the technical problems by developing a simple and efficient internal combustion rotary engine, with low vibration levels, that can operate efficiently at speeds over 10,000 rpm, providing a power-to-weight ratio higher than that of all known engines and that can be designed and manufactured for a wide range of power and applications. The invention describes an internal combustion rotary engine designed for the operation of vehicles or certain tools, machinery, or equipment. Internal*

*combustion rotary engine designed for the operation of vehicles or certain tools, machinery, and equipment. Building a rotary internal combustion engine according to the model described by this invention brings the following advantages:*

- *small and compact engines which generate high power*
- *high efficiency*
- *very low levels of vibration and noise*
- *simplicity of construction by eliminating valves and using a continuous burning.*

***State of development: concept.***
***Contact:*** *cornel.ciupan@muri.utcluj.ro*
***Presentation link:*** *https://www.utcluj.ro/en/*

***27.***

***Title: MOTOR VEHICLE SIGNALLING SYSTEM***
***Patent number: RO132649 (A2)/2018-06-29***
***Author/s: Moldovan Ioan, Mihai Ciupan****
***Institution: *Technical University of Cluj-Napoca***
***Category: D***
***Description:*** *The invention relates to a sealing system which can be used in the construction of a hydraulic or pneumatic pump or motor, preferably operating at relatively high pressures.*
*State of development: concept.*
*Description: The invention relates to a signaling system for motor vehicles intended to provide information both to the motor vehicle's driver and the following motor vehicle's driver within a column of motor vehicles. The claimed system comprises a signaling subsystem (1) for the road users, having a rear signaling system (6) which is provided with two lighting tapes (10 and 11) offering dynamic information about braking and acceleration and of a driver's signaling subsystem (2) consisting of a module (12) which monitors vehicles or pedestrians approaching the door opening area and of a module (13) verifying the presence of an obstacle in the door opening area, which is used when the motor vehicle is stopped and when the door opening is desired.*
***State of development: Virtual prototype***
***Contact:*** *cornel.ciupan@muri.utcluj.ro*
***Presentation link:*** *https://www.utcluj.ro/en/*

***28.***

***Title: ERGONOMIC AND SAFETY DESIGN OF A DRILL HAND POWER TOOL***
***Patent/project number: Ph.D. thesis***
***Author/s: Marian – Florentin GHENA, Alexandru – Mihai IAMANDI, Liviu – Daniel GHICULESCU***
***Institution: University POLITEHNICA of Bucharest***
***Category: D***
***Description:*** *Power tools are widely used because of their efficiency, short-time working, and the multitude of applications in which they can be used. The hand drill is the instrument that managed to stand out from*

*the others because of its ease of use and compact design. In recent years, an attempt has been made to improve its design in order to further increase its usefulness by creating a handle incorporated into its body and a drill bit barrier designed to prevent possible injuries to the user. Therefore, the designers had to combine ergonomics and operational safety without raising the manufacturing price of the hand drill.*
***State of development: Ph.D. thesis***
***Contact:*** *marian.florentin.ghena@gmail.com*
***Presentation link:*** *https://upb.ro/en/*

***29.***

***Title: THE DRIVE SYSTEM OF ADAPTIVE EXHAUST COVER AbyC***
***Patent/project number: Student Project***
***Author/s: Marinuț Gabriel Paul, Golcea Julia Daiana, Stoianov Alin Ioan; coordinators: BIRTOK-BANEASA Corneliu, BUDIUL-BERGHIAN Adina***
***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: D***
***Description:*** *The drive system of Adaptive Exhaust Cover AbyC it's destinated for competition cars and it's made for protecting the engine when it's stopped. It can be easily used with the help of sensors that send signals for the electrical engine to be operated. Competition engines are equipped with exhaust systems that aims to eliminate the gases as quickly as possible with a minimum resistance.*

*In the case of Puma AbyC, the car is equipped with a direct exhaust, meaning it's going upwards through the hood leaving the exhaust manifold open for impurities. This cover helps to protect the engine from impurities when it's stopped, and the drive system of the exhaust allows for a easy usage, it can be automated with sensors making the electric engine to move the cover system.*
*In the begging of the calculation process the geometric calculation of gears was needed, then the forces that are appearing in the gears, finishing with the calculation of the shaft minimum diameter.*

*All this calculations were checked in Autodesk Inventor making the exact same gears and checking if all parameters and forces are the same. The 3D model of the drive system and exhaust cover AbyC were also realised using Autodesk Inventor.*
***State of development: Virtual Ideea***
***Contact:*** *MarinutPaul@yahoo.com*
***Presentation link:*** *https://www.fih.upt.ro/v4/eng/*

***30.***

***Title: SMART ELECTRIC VEHICLE WITH LORA COMMUNICATION SYSTEM AND RECOVERY OF A PART OF THE ELECTRICITY CONSUMED IN ORDER TO INCREASE AUTONOMY***
***Patent number: OSIM A00201/28.03.2019***
***Author/s: Răzvan-Marcel MĂRCUȘ, Cosmin-Neluțu RUS, Monica LEBA***
***Institution: University of Petroșani***
***Category: F***

***Description:*** *An intelligent electric vehicle with a LoRa communication system that monitors the quality of the environment, taking over the data of the various sensors located on the vehicle, also having the functionality of energy recovery.*
***State of development: prototype***
***Contact:*** *pdragos_74@yahoo.com*
***Presentation link:*** *https://www.upet.ro/en/*

***31.***

***Title: MODULAR TECHNOLOGY TO SUPPORT UNDERGROUND EXCAVATIONS***
***Patent number: OSIM A00596/25.08.2016***
***Author/s: Ioel Samuel VEREŞ, Mihai Sorin RADU, Sorinel Ştefan GHIMIŞI, Valeriu PLEŞEA***
***Institution: University of Petroşani***
***Category: D***
***Description:*** *The invention consists in the development of a support technology that ensures the stability of underground excavations for much longer periods of time.*
***State of development: prototype***
***Contact:*** *pdragos_74@yahoo.com*
***Presentation link:*** *https://www.upet.ro/en/*

***32.***

***Title: eTruck@RO.UPET***
***Project number: UPET-1/2021***
***Author/s: Răzvan-Marcel MĂRCUŞ, Monica LEBA, Marius-Nicolae RISTEIU***
***Institution: University of Petroşani***
***Category: D***
***Description:*** *A prototype electric car, designed open-source, with an 80 kW BLDC motor, powered by a 25 kW battery bank, at a voltage of 400 V, direct current.*
***State of development: prototype***
***Contact:*** *pdragos_74@yahoo.com*
***Presentation link:*** *https://www.upet.ro/en/*

***33.***

***Title: Buggy4Fun***
***Project number: UPET-2/2021***
***Author/s: Marius Nicolae RISTEIU, Monica LEBA, Mărcuş-Marcel RĂZVAN, Remus Constantin SIBIŞANU, Alexandru CHIUDA, Alexandru STOICA***
***Institution: University of Petroşani***
***Category: D***
***Description:*** *Small electric car, which can be used on various types of terrain, in urban centers, to reduce pollution, powered by both dedicated batteries and alternative sources, regenerative braking and solar energy.*

***State of development: prototype***
***Contact:*** *pdragos_74@yahoo.com*
***Presentation link:*** *https://www.upet.ro/en/*

***34.***

***Title: ELECTRIC ASSISTED SELF-ADAPTIVE HYBRID TRANSMISSION***
***Patent/project number: concept***
***Authors: ROMEO CĂTĂLINOIU[1], SORIN AUREL RAȚIU[2], IMRE ZSOLT MIKLOS[2]***
***Institution: Coramex by Service Automobile SA 1, Politehnica University of Timisoara, Faculty of Engineering Hunedoara 2***
***Category: D***
***Description:*** *The proposed solution refers to an implementation of patent application no. 00889/ 12.12.2019 and consists of a gearbox intended to equip vehicles with pedals. The gearbox is a mechanical reducer characterized by the fact that it provides assistance when pedaling through an electric motor, assistance that can be achieved in three modes: low, medium and high, self-adaptive depending on the value of the load torque that must be overcome. The major advantage is that changing gears becomes unnecessary.*
***State of development: concept***
***Contact:*** *sorin.ratiu@fih.upt.ro*
***Presentation link:*** *https://youtu.be/-EIxOKofIok https://youtu.be/N9JrCiFYk-M*

***35.***

***Title: INTERNAL COMBUSTION ENGINES AND DOWNSIZING PHENOMENON***
***Patent/project number: student project***
***Authors: Carp Andrei, Buta Andrei-Ionut; Coordinator: BIRTOK-BANEASA Corneliu***
***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: D***
***Description:*** *For the past 100 years, its principle has remained the same: air and fuel go in, an explosion happens in the cylinders, and power shoves you onward. But every year, engineers hone the internal combustion engine to go faster and farther, developing it to be more efficient than before, producing the kind of power you used to only see on supercars. Automotive engines have traditionally been oversized for regular operation so that they can meet the peak performance demands of a given vehicle application. Such engines were naturally aspirated and operated at far less than peak engine efficiency when operating on the relatively lightly loaded fuel economy drive cycles. To improve performance and engine efficiency, pressure-charged engines were developed that can generate higher torque levels at lower relative engine speeds. Such engines can offer comparable vehicle performance from a smaller engine. These smaller displacement engines, often with fewer cylinders, run in a more efficient region of the engine's speed and load map during normal operation owing to lower throttling and frictional losses. On the other hand, boosted engines are more prone to knocking owing to the higher density air/fuel charge and therefore tend to be tuned with a lower compression ratio than modern naturally aspirated engines with gasoline direct injection. The result is a lower peak efficiency for downsized/boosted engines than that of a naturally aspirated engine, but more time spent operating in the higher efficiency region. Downsized/boosted engines are ICEs where the swept volume (displacement) of the engine has been reduced, while vehicle performance is maintained by pressure charging the intake air using a turbocharger or supercharger. Such engines represented 34% of the market in 2019. In 2015, the National Research Council described the next steps toward turbocharged/downsized engines as turbocharging and downsizing Level 1*

*(33% downsized), stoichiometric direct injection, variable valve timing, dual cam phasing, and idle stop-start. In 2019, engines with these technologies ware available from most manufacturers and found in all light-duty vehicle segments. In particular, turbocharged engines with gasoline direct injection enabling engine displacement reduction have achieved a market penetration rate of 24% in 2017, and are likely to be a predominant engine type in 2025.*

***State of development: exploratory research***

***Contact:*** *deyu_ere@yahoo.com*

***Presentation link:*** *https://www.fih.upt.ro/v4/eng/*

***36.***

***Title: Model of handling oversized vehicles with limited tank size, using image processing technology and iodine self operation on highways in vietnam***

***Patent/project number: in process of patent registration***

***Authors: NGUYEN DUC MANH, NGUYEN NGOC QUYNH ANH, TRAN DUC MANH***

***Institution: Lao Cai High School for Gifted Students, Vietnam***

***Category: D***

***Description:*** *Along with the socio-economic development, the traffic of goods between localities is taking place strongly, daily and continuously has created more and more traffic on the road to meet the needs of the society. Therefore, some vehicle managers, driving for personal benefits, and enterprises have allowed oversized and loose goods vehicles to circulate in order to save costs, causing many unfortunate traffic accidents to occur affecting the health and lives of road users and lack of traffic officials. For the reasons mentioned above, their team conducted the project research: "Model of handling oversized vehicles limited to the size of the trunk, application of image processing technology and iodine self operation on the highway in Vietnam" in order to create a system of handling oversized and smartly overloaded vehicles that do not stop on the highway in Vietnam to reduce the situation of violating vehicles and ensure traffic safety.*

***State of development: prototype***

***Contact:*** *info@tisias.org*

***Presentation link:*** *https://www.tisias.org/*

***36.***

***Title: UPGRADE VOLKSWAGEN GOLF 5 GT***

***Patent/project number: Student project***

***Authors: Iancu Catalin Corneliu; Coordinator: BIRTOK-BANEASA Corneliu***

***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara***

***Category: D***

***Description:*** *I am a student at FIH UPT specializing in Road Vehicles and I am passionate about Volkswagen cars. I started my career in the mechanical field in 2005, helping my father to repair and maintain Romanian Dacia vehicles, then I realized that this job is suitable for my potential. Through this project, I brought some improvements to my GOLF 5 car as follows: Conversion from Continental injectors to Bosch injectors, upgrade of the oil pump drive mechanism and the implementation of a reliable distribution kit with a high lifespan Brand GATES etc. Also made improvements on the ergonomic side by implementing a multifunctional steering wheel.*

***State of development: prototype***

***Contact:*** *cornelutiancu@yahoo.com*

***Presentation link:*** *https://www.facebook.com/corneliu.iancu.14*

# E - Teaching methods, Books, History and Cultural studies

**1.**

***Title: REASON, LANGUAGE, COMMUNICATION. SOME ASPECTS OF PRAGMATIC KNOWLEDGE***
***Patent/project number: Humanities Project***
***Author/s: Conf. univ. Eugenia Bogatu***
***Institution: State University of Moldova***
***Category: E***
***Description:*** *Outcome of research project ,,Epistemological approach to personal development and education for society: from transdisciplinary strategies to the pragmatic ends of the current society in the Republic of Moldova", number 20.80009.1606.08, State Programme (2020-2023); project manager: conf. univ. Eugenia Bogatu*
***State of development: paper published in ANNALS OF THE UNIVERSITY OF CRAIOVA PHILOSOPHY SERIES, nr. vol. 49, 1/2022, pp. 103-116 - Erih Plus journal, Scopus***
***Contact: eugenia.bogatu@usm.md ; +373 786 81 179; +40 751 827 530;***
***Presentation link: https://usm.md/***

**2.**

***Title: ERASMUS PROJECTS - THE PATH FOR A SUCCESSFUL CAREER***
***Patent/project number: Erasmus Project***
***Author/s: Mihail Alexandru Stanescu [1], Mihai Florian Miu [2]***
***Institution: University Politehnica Bucharest [1], University Transilvania Brasov [2]***
***Category: E***
***Description:*** *This project shows how to develop your skills for a good career. If people participate in Erasmus projects, they can build the fundamentals of a successful career. In every good career, you should know how to express your message, how to be a good team player, and have good management. The project is based on the testimonies of successful people who have been able to assert themselves both culturally and technically by participating in such projects. At the same time, a case study of a person from the target group will be presented - his evolution in terms of personal development and career. This resulted in starting social research. We take interviews with people from different work areas (IT, arts, psychology, and engineering). Based on their answers about their Erasmus experiences and career, we observe that they also improve their soft skills after the international experiences. The most important thing that we promote is public speaking and critical thinking. With these skills, now honed, we are able to have many achievements*

*in the national and international area. People who know how to sell their goods have a better view from the others.*
***State of development: student project***
***Contact: +40721520080***
***Presentation link: https://youtu.be/zA8F2M3Ppls***

***3.***

***Title: CONFIGURATOR OF TECHNICAL DOCUMENTATION FOR LEARNING IN THE VIRTUAL ENVIRONMENT***
***Patent/project number: PhD***
***Author/s: Carmen Tiță***
***Institution: "Gheorghe Asachi" Technical University of Iasi, Romania / Faculty of Industrial Design and Business Management***
***Category: E***
***Description:*** *The Covid 19 pandemic has produced an important impact in education across the planet, so the developed application aims to identify how students can make the transition from the classical form to online learning: students' accessibility to learning platforms; the quality of information - the degree to which teachers have been able to adapt materials to the online format; the capacity and desire of the teacher from identify communication channels specific to this environment; usefulness from the perspective of the presented materials, of the accumulated experience; degree of satisfaction; student performance.*
*The configurator of technical documentation for learning in the virtual environment has the role to facilitate the understanding by students and interested persons of the links that are made between several disciplines within the Faculty of Industrial Design and Business Management, such as: Textile structures – yarns, Structure and design of textile garments, Weaves, Design, Basics of textile technology, Construction and modeling of clothing, Technologies for textile garments, Design of technological processes for textile garments, Processes and equipment for textile garments, Quality assurance in garments, presentation of patents for different elements of the men's shirt product at the European Patent Office (EPO).*
***State of development: application under testing on men's shirt product***
***Contact: +40744100325*** *carmen.tita@academic.tuiasi.ro* *carmen.tita@yahoo.com*
***Presentation link:***

***4.***

***Title: UNIVERSALITATEA VITEI-DE-VIE // THE UNIVERSALITY OF GRAPEVINE***
***Patent/project number: ISBN 978-9975-62-435-0***
***Author/s: Dobrei A., prof., Dobrei Alina, prof., Darau P., Alexandrov E., dr. hab., Botnari V., dr. hab., Gaina B., acad.***
***Institution: University of Agricultural Sciences and Veterinary Medicine of Banat "Regele Mihai I al Romaniei", Timisoara; Institute of Genetics, Physiology and Plant Protection, Chisinau, Republic of Moldova; Academy of Sciences of Moldova***
***Category: E***

***Description:*** *The Universality of grapevine. Second edition, revised and completed. Chisinau, 2021. 331 p. ISBN 978-9975-62-435-0. Author: Dobrei A., prof., Dobrei Alina, prof. Darau P. - University of Agricultural Sciences and Veterinary Medicine of Banat "Regele Mihai I al Romaniei", Timisoara. Alexandrov E., dr. hab., Botnari V., dr. hab. - Institute of Genetics, Physiology and Plant Protection, Chisinau, Republic of Moldova; Găina B. acad. - Academy of Sciences of Moldova. Through this work an attempt was made to demonstrate the universal character of the grapevine: fascinating and miraculous, the grapevine has been for man throughout time a permanent attraction, a mystery and a blessing, coming to satisfy, through the grapes and the wines produced from them the most refined tastes and to soothe troubled souls. The work is structured in 14 chapters: 1. Grapevine and religion. 2. Grapevine and mythology. 3. Grapevine and art. 4. Grapevine and wine în movies and ballet. 5. Grapevine aş anornamental plant. 6. Grapevine în handicraft and artisanship. 7. Grapevine and philately. 8. Grapevine ornaments on traditional costumes. 9. Grapevine and sigillography. 10. Grapevine and numismatics. 11. Grapevine and heraldry. 12. Traditions and manners. 13. Oenotourism (Wine tourism). 14. Ampelotherapy, oenotherapy, oenogastronomia.*
***State of development: book***
***Contact:*** *alexandrov.eugeniu@gmail.com*
***Presentation link:***

***5.***

***Title: MONOGRAPH „FLORA OF BESSARABIA" VOL. IV / MONOGRAFIE „FLORA BASARABIEI" VOL. IV***
***Project number: ISBN 978-9975-47-199-2.***
***Authors: A. Negru, Valentina Cantemir, V. Ghendov, Gh. Gînju, Stela Gînju, Olga Ioniță, A. Istrati, Tatiana Izverscaia, P. Pînzaru, A. Ruschuk, Ana Ştefîrță, Elena Tofan-Dorofeev.***
***Institution: "Alexandru Ciubotaru" National Botanical Garden (Institute), Republic of Moldova***
***Category: E***
***Description:*** *The monographic work "Flora of Bessarabia", volume IV includes the general characterization of 43 families, 148 genera and 418 species of vascular plants of the Magnoliophyta phylum, recorded in the spontaneous flora of Bessarabia. The species, included in the volume – 624 pages, are accompanied by synonyms, detailed descriptions of morphological, biological and ecological characters, general distribution, areas of use, as well as their original drawings. The conservation status of rare species is also indicated.*
***State of development: Book - Published with support of NARD, Project no. 20.80009.7007.22***
***Contact:*** *gradinabotanicachisinau@gmail.com v_ghendov@mail.ru +373 69607791*
***Presentation link:*** *https://gbni.md/en*

***6.***

***Title: MONOGRAPH „KNIPHOFIA IN REPUBLIC OF MOLDOVA" /MONOGRAFIE „KNIPHOFIA ÎN REPUBLICA MOLDOVA"***
***Project number: ISBN 978-9975-64-339-9***
***Author: Dr. Irina SFECLĂ***
***Institution: „Alexandru Ciubotaru" National Botanical Garden (Institute), Republic of Moldova***
***Category: E***

***Description:*** *The accumulated and recorded knowledge in the work „Kniphofia în Republica Modova" represents a significant contribution for the vast process of introducing and ameliorating flowering plants.*

*The results of studying the ontogenetic cycle facilitate the accurate cultivation, the favorable development of the plant, and the efficient fructification with obtainment of a qualitative seed material consequently.*

*The studies of the flowering's particularities enable the sustainable use of the studied species in landscaping green spaces and flower production. The book appeals to specialists in biological sciences, teachers, students and plant lovers.*

*The work was approved and recommended for publication by the Scientific Council of the „Alexandru Ciubotaru" National Botanical Garden (Institute).*

*Published with the financial support of the project „Research on mobilizing plant diversity with ornamental potential for ex situ conservation"- 20.80009.7007.14.*

***State of development: scientific paper***

***Contact:*** *gradinabotanicachisinau@gmail.com irinasfecla@gmail.com*

***Presentation link:*** *https://gbni.md/en*

*7.*

***Title: RESEARCH AND SCIENCE TODAY***

***Patent/project number: ISSN: 2247-4455 / ISSN-E: 2285-9632***

***Author/s: Flavius Cristian Mărcău***

***Institution: Research and Science Today***

***Category: E***

***Description:*** *RESEARCH AND SCIENCE TODAY is a biannual science journal established in 2011. The journal is an informational platform that publishes assessment articles and the results of various scientific research carried out by academics.*

*We provide the authors with the opportunity to create and/or perfect their science writing skills. Thus, each issue of the journal (two per year and at least two supplements) will contain professional articles from any academic field, authored by domestic and international academics.*

*The goal of this journal is to pass on relevant information to undergraduate, graduate, and post-graduate students as well as to fellow academics and researchers; the topics covered are unlimited, considering its multi-disciplinary profile.*

*Regarding the national and international visibility of Research and Science Today, it is indexed in over 40 international databases (IDB) and is present in over 200 online libraries and catalogues; therefore, anybody can easily consult the articles featured in each issue by accessing the databases or simply the website.*

*More informations about abstracting and indexing here: http://www.rstjournal.com/indexari-2/*

***State of development: Scientific paper/research project***

***Contact:*** *flaviusmarcau@yahoo.com / flavius@rstjournal.com* ***+40766665670***

***Presentation link:*** *www.rstjournal.com*

*8.*

***Title:*** ***INTEGRATED STUDY ON GOVERNANCE AND HUMAN RIGHTS IN THE REPUBLIC OF MOLDOVA***
***Patent/project number: # 20.80009.1606.15 (Modernization of governance mechanisms focused on the protection of human rights)***
***Author/s: Rodica CIOBANU, Iordanca-Rodica IORDANOV, Veronica MOCANU, Mariana ROSCA***
***Institution: Moldova State University***
***Category: E***
***Description:*** *The research carried out within phase two of the project illustrates the application and testing of the research methodology designed to identify the possibility of modernising governance mechanisms centred on the protection of human rights. The methodology applied helped to articulate an integral vision of the current real challenges, trends, action steps, as well as to identify drivers and benchmarks for the modernisation of the governance, including the primacy of human rights protection in the Republic of Moldova.*

*The research aimed to identify and propose key policy measures for reform through a comparative and integrated analysis. Thanks to the applied methodology, it was possible to identify the areas of convergence and of divergence between citizens and authorities, which converge not only the understanding of the substance of governance carried out through the principles of good governance, but also the involvement and the degree of rights´ protection by the authorities. Thus, the research carried out provides a better understanding of the actions and areas for the social benefit.*

*The results obtained were further validated through public debates held on sectoral issues with the involvement of professionals (representatives of the prosecutor's office, the judiciary, the Ministry of Internal Affairs) and academics in order to conceive and articulate a clear vision of how to modernise the governance in the Republic of Moldova.*
***State of development: Scientific Paper.***
***Contact: E-mail: rod.ciobanu@gmail.com***
***Presentation link: https://usm.md/?lang=en***

*9.*

***Title:*** ***INTERDISCIPLINARY METHODOLOGY IN THE PARADIGMATIC RECONSTRUCTION OF LAW***
***Patent/project number: # 20.80009.1606.15 (Modernization of governance mechanisms focused on the protection of human rights)***
***Author: Rodica CIOBANU***
***Institution: Moldova State University***
***Category: E***
***Description:*** *The novelty and scientific originality of the results lie in the comprehensive study on the paradigmatic reconstruction of law by conceptualizing the research framework of the general theory of law, to strengthen its methodological dimension, by adopting an interdisciplinary approach that may overcome the crisis of legal science and lead to a continuous development under current conditions. The originality*

*of the research consists in development of a new framework for the study of the theory of law, linked to the major trends of postmodern science - the multi-, inter- and transdisciplinary paradigmatic framework.*

*The main scientific results that help to solve the scientific problem consist in substantiating the reconceptualization of the scientific paradigm of law by applying the interdisciplinary methodology on convergence between legal theory and practice, which contributed to frame the complex character of the person-state-law axis, determining the reconfiguration dimensions and principles of the relations between epistemic and pragmatic framework, in order to identify effective law solutions and overcoming the legal science' crisis by strengthening the methodological dimension (general, fundamental and applicative) of the general theory of law.*

*The theoretical significance of the research consists in shaping the interdisciplinary paradigm based on the priority dimensions of law and current methodological principles, indicating the platform of rapprochement between legal theory and practice, as well as determining ways and means to overcome the crisis of legal science, as a primary step in overcoming the law crisis, by modeling and strengthening the interdisciplinary methodological foundations of the general theory of law.*

*The applicative value of the research is framed by two dimensions: one aims at creating a solid methodological support for the legal scientific research and an interdisciplinary platform for dialogue; another one focuses on updating the active role of human being in the current formula of the rule of law and legal science.*

***State of development: Habilitated doctor's thesis / Innovative researche.***

***Contact: E-mail: rod.ciobanu@gmail.com***

***Presentation link: https://usm.md/?lang=en***

***10.***

***Title: TRANSITION TOWARDS GOOD GOVERNANCE AND EFFICIENT PROTECTION OF HUMAN RIGHTS AND FREEDOMS***

***Patent/project number: # 20.80009.1606.15 (Modernization of governance mechanisms focused on the protection of human rights)***

***Author/s: Rodica CIOBANU (coord.), Ion GUCEAC, Elena ARAMA, Andrei NEGRU, Veronica MOCANU, Natalia CRECIUN, Oleg PANTEA, Ianuş ERHAN, Svetlana SLUSARENCO***

***Institution: Moldova State University***

***Category: E***

***Description:*** *Governments that want to make progress must know that it cannot be achieved in a situation of lack of interest for human rights. The Republic of Moldova, its citizens and the authorities have announced their European aspirations for integration into a democratic, legal space, but these entities still continue to seek their own identity, in which legal practices, good governance mechanisms, the promotion of human rights become reality. In this context, the solutions offered by the academic environment focus on two levels: the analysis of the situation in today's society and the highlighting of the characteristics of an efficient government based on the protection of human rights.*

*Institutions, policies, mechanisms capable of producing qualitative change, developing and enforcing rules, providing services required by the society should not only be described; their results should also be evaluated, by introducing informational and systemic tools for measuring governance. In this direction of development, science is advancing a disaggregated approach, in which the main elements are the rule of law, democracy and human rights.*

*This approach has resulted in the development of a generic model for measuring the quality of governance, the main components of which are: diagnosis, public policy making / appropriate legal framework, implementation and innovation; for each of these components the appropriate modalities and tools are shown.*

***State of development: Book.***

***Contact: E-mail: rod.ciobanu@gmail.com***

***Presentation link: https://usm.md/?lang=en***

***11.***

***Title: ACTA TECHNICA CORVINIENSIS – BULLETIN OF ENGINEERING: 15th YEAR IN SCIENTIFIC PUBLISHING***

***Author/s: Imre KISS***

***Institution: Politehnica University Timişoara, Faculty of Engineering Hunedoara***

***Category: E***

***Description:*** *ACTA TECHNICA CORVINIENSIS – Bulletin of Engineering is an international and interdisciplinary journal which reports on scientific and technical contributions and publishes invited review papers covering the full spectrum of engineering. We are very pleased to inform that our journal ACTA TECHNICA CORVINIENSIS – Bulletin of Engineering completed its 14 years of publication successfully [2008–2021, Tome I–XIV]. In a very short period it has acquired global presence and scholars from all over the world have taken it with great enthusiasm.*

*This year, 2022, marks ACTA TECHNICA CORVINIENSIS – Bulletin of Engineering' 15th year in scientific publishing! Our ability to adapt has allowed us to prosper over the years. I look forward to new challenges, new technology and to seeing what the next 15 years will bring. We look forward to the next 15 years of service excellence!*

***State of development: Book/Journal Development***

***Contact: Imre Kiss / UPT /FIH/ DEM/ imre.kiss@fih.upt.ro***

***Presentation link: https://acta.fih.upt.ro/***

***12.***

***Title: ANNALS OF FACULTY ENGINEERING HUNEDOARA – INTERNATIONAL JOURNAL OF ENGINEERING: 20th YEAR IN SCIENTIFIC PUBLISHING***

***Author/s: Imre KISS***

***Institution: Politehnica University Timişoara, Faculty of Engineering Hunedoara***

***Category: E***

***Description:*** *ANNALS of Faculty Engineering Hunedoara – International Journal of Engineering is an international and interdisciplinary journal which reports on scientific and technical contributions and publishes invited review papers covering the full spectrum of engineering.*

*We are very pleased to inform that our journal ANNALS of Faculty Engineering Hunedoara – International Journal of Engineering completed its 19 years of publication successfully [2003–2021, Tome I–XIX]. In a very short period it has acquired global presence and scholars from all over the world have taken it with great enthusiasm.*

*This year, 2022, marks ANNALS of Faculty Engineering Hunedoara – International Journal of Engineering' 20th year in scientific publishing! Our ability to adapt has allowed us to prosper over the years. I look forward to new challenges, new technology and to seeing what the next 20 years will bring. We look forward to the next 20 years of service excellence!*

***State of development: Book/Journal Development***
***Contact: Imre Kiss / UPT /FIH/ DEM/ imre.kiss@fih.upt.ro***
***Presentation link: https://acta.fih.upt.ro/***

***13.***

***Title: CAREER COUNSELING AND GUIDANCE CENTER 2022***
***Author/s: Mihaela Popa***
***Institution: Politehnica University Timişoara, Faculty of Engineering Hunedoara***
***Category: E***
***Description:*** *The Career Counseling and Guidance Center is a structure that has a teaching staff representing each of the 10 faculties of the Polytechnic University of Timisoara. The mission of this structure is to support students to improve their skills and start living more aware and aligned lives with themselves.*

*Within the Career Counseling and Guidance Center, the services offered are adapted to the needs and requests of each generation of students. The portfolio of activities, found on the CCOC website of the faculty, merges into a coherent, perfectable puzzle, full of challenges, patience, enthusiasm, collaboration, results, satisfactions and hope.*
*This academic year the CCOC-FIH initiated and carried out the following activities:*

*1. Building and updating the CCOC website on the faculty page;*
*2. From October 2020, the students of the first and second years went through the recommended episodes of the Neuroscience Project in the classroom, launched by Paul Olteanu and his team, with the support of MECTS - https://neurostiintalaclasa.ro/home*
*We received over 130 feedbacks.*
*"I learned a lot about habits, buttons, chemicals and much more that I would not have learned about if it weren't for you, thank you from the bottom of my heart. About Paul, if there were more of us like him, probably Terra, which is a wonderful place, would be Heaven on Earth.,, Emil, year III AR*
*,, I expected this podcast to be boring, the reason being the uninteresting beginning for me at first analysis, but I was pleasantly surprised. I learned more things than I thought, which I can honestly say is really valuable information for me." Valentin/IMAN*
*3. Organization and participation in the Hunedoara 2022 graduation celebration.*
*4. Organization and participation in the event "Career Days" Timişoara XX and XXI editions, with 40 students in May 2022 and 70 students in October 2022.*
*5. 70 of the first-year students in weeks 1-3 of the academic year 2022-2023 participated in the successful implementation of the knowledge game Icebreaker, taken from the student affairs counseling at the Faculty of Engineering and Technology Narvik/Norway.*

*4. Initiating, organizing and participating in the "Socialization through movement" event. Starting in October 2022, on Mondays and Wednesdays between 18-20, students come to socialize through movement in the premises of the faculty gym. Friendly football game 4+1 with representatives of students from Hunedorian high schools.*
*5. Involvement of student volunteers in the Caravan to promote the UPT educational offer 2023-2024 in high schools*
***State of development: Center***
***Contact:*** *elapopa60@gmail.com*
***Presentation link:*** *https://ccoc.fih.upt.ro/*

**14.**

***Title: DYNAMICS***
***Patent/project number: ISBN 978-86-7083-884-0***
***Author/s: Nikola Mladenović, Nataša Trišović***
***Institution: University of Belgrade, Faculty of Mechanical Engineering, Serbia***
***Category: E***
***Description:*** *Mladenović N., Trišović N.: Dynamics, Faculty of Mechanical Engineering, University of Belgrade, 2015, 2017- 335 pages, ISBN 978-86-7083-884-0.*
*A textbook intended for undergraduate, master's and doctoral students, according to reviewers, written in high-quality scientific language. The most important chapters in Dynamics, including the dynamics of a material particle and the dynamics of a material system, have been done concisely and in detail.*

*The chapters in the book are: Differential equations of a material particle, Basic theorems of dynamics, Motion of a particle under the action of a central force, Linear oscillations of a material particle, Dynamics of relative motion of a material particle, Dynamics of a particle of variable mass, Differential equations of motion of a material system, Fundamentals of analytical mechanics, Gyroscope theory, Impact theory.*
***State of development: university book***
***Contact: Nataša Trišović*** *ntrisovic@mas.bg.ac.rs* ***Tel: +38163283507***
***Presentation link:*** *https://www.mas.bg.ac.rs/biblioteka/izdanja/5* ***(book number 3)***

**15.**

***Title: SCRATCH PROGRAMMING LANGUAGE***
***Patent/project number: informatics circle***
***Author/s: Popescu Bianca Claudia***
***Institution: Palatul Copiilor Deva***
***Category: E***
***Description:*** *The project presents the activity carried out in the Informatics circle at the Children's Palace, in the groups of primary classes. Children are introduced to Scratch, a very attractive programming language. At the Informatics circle at Palatul Copiilor Deva, primary school children are introduced to programming language. This language is very attractive because it gives children the opportunity to understand the concepts of programming, coding in a fun way. Using Scratch, you can make animations,*

*interactive stories and games. This is how children's algorithmic thinking, imagination and creativity develop. Scratch can be accessed in over 40 languages. The interface of the application is very user-friendly.*

*Its menu consists of different colored buttons. Pressing any button, opens a list of instruction blocks colored in the same color as the selected button, which makes the application even easier to use. Scratch can be used online or offline by downloading the application to your computer. Using it online, has the advantage that you can share your projects with other users around the world.*

***State of development: informatics circle***

***Contact:*** *popescu_bianca7@yahoo.com* ***Tel. 0751228501***

***Presentation link:*** *https://www.palatulcopiilordeva.ro/cercuri/cercuri-palatul-copiilor-deva-structura-orastie/informatica/*

***16.***

***Title: TELEPRESENCE ROBOT FOR ONLINE COURSES***

***Patent/project number: student project***

***Author/s: Mariș Sebastian Daniel, Paul Țoța (coordinator)***

***Institution: Centrul Județean de Excelență Hunedoara***

***Category: E***

***Description:*** *The project is the prototype of a telepresence robot useful for online courses of schools. The robot is equipped with various sensors and can be used for remote laboratory work. Remote video monitoring is possible, and communications and remote control are done via Wi-Fi, with the possibility of connecting via the Internet.*

***State of development: Prototype***

***Contact:*** *www.cexhd.ro* *paultota79@yahoo.com*

***Presentation link:*** *https://www.youtube.com/watch?v=zakfQ-IYnMA*

***17.***

***Title: OPEN EDUCATIONAL RESOURCES AS INNOVATIVE TEACHING TOOLS IN MECHANICAL ENGINEERING CLASSES***

***Patent/project number: teaching tools project***

***Author/s: Daniela-Delia ALIC; Milan RACKOV***

***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara; University of Novi Sad, Faculty of Technical Sciences, Serbia***

***Category: E***

***Description:*** *In the frame of this project, Open Educational Resources/OER, interactive simulations and animations are used in a blended learning approach, in order to improve student's understanding of classical mechanics concepts and laws, as well as to develop their inquiry skills by exploring cause-and-effect relationships. The openness and flexibility allowed by open licensing of OER's, empower educators to become more innovative in their pedagogical practices, as the OER's 5R Concept gives the course designer the opportunity to adapt the resources according to the course objectives and requirements: Retain, Revise, Remix and finally, Re-distribute.*

*In this context, for the interactive simulations selected to effectively explain and illustrate course topics, our challenge as teachers consists in creating the most appropriate scenario, which requires students to predict and then interpret the effect of manipulating related variables. Thereby, we can encourage student participation and involvement in active learning activities and facilitate the development of their problem-solving skills.*

*Our recent survey results indicate the current use of interactive simulations in blended learning activities as an innovative exploration environment for mechanics concepts, highly effective in classroom, laboratory and homework activities, extremely well received by our students and helpful in understanding the instructional material in mechanical engineering subjects.*

***State of development: laboratory interactive simulations and animations***
***Contact:*** *daniela.alic@fih.upt.ro*
***Presentation link:***
*https://www.fih.upt.ro/ufs/3qCykyWyVbaDgorNJ26c/INGINERIE_MECANICA_an1sem2_FIH.wmv*

***18.***

***Title: INDUSTRIAL PROCESS MANAGEMENT PROBLEMS / PROBLEME DE CONDUCERE A PROCESELOR INDUSTRIALE***
***Patent/project number: ISBN 978-606-554-305-8***
***Author/s: Tirian Gelu-Ovidiu***
***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: E***
***Description:*** *Automation is one of the fields with the most spectacular developments in recent times, especially related to the development of computer systems and, respectively, new equipment, new concepts and approaches in managing processes. These developments occurred in parallel with the increase in complexity, precision, quality and economy of technological processes. The main objective of this work is the synthesis, development and implementation of some management structures of the continuous rolling process that will practically lead to the elimination of cracks in the semi-finished product, with the previously mentioned consequences. In the context of this objective, the following research directions are developed:*
*- mathematical modeling of the steel solidification process in order to know more accurately the phenomenon of crack formation;*
*- development of a structure of neural networks to detect in real time the appearance of a crack;*
*- the synthesis and development of solutions for managing the continuous rolling process based on fuzzy logic, which would allow the elimination of cracks detected by the neural network and at the same time prevent the formation of potential cracks;*
*- simulation and practical implementation of research results.*
***State of development: book***
***Contact:*** *ovidiu.tirian@fih.upt.ro*
***Presentation link:*** *https://www.fih.upt.ro/personal/ovidiu.tirian/*

**19.**

***Title: ROBOTICS / ROBOTICĂ***
***Patent/project number: ISBN 9786065545960***
***Author/s: Tirian Gelu-Ovidiu***
***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: E***
***Description:*** *Mechatronics is currently the intersection point of top results in a series of fields: mechanics, automation, computers and actuation systems. This concentration of such different scientific and technological branches is reflected in the particular complexity of the robot, both in terms of mechanical architecture and in terms of the driving system.*

*Actually, the robot is the natural result of the evolution from the automated machine tools, the machines with program control, the automatic manufacturing lines, etc. At the moment when their rigidity and inflexibility no longer corresponded to the current requirements of productivity and quality, and man tried to perform direct, immediate actions on the processes, acquiring a role of supervision and control.*

*So the robot, as a result of these technical-scientific developments, is able to replace man and perform tasks that are too difficult or too dangerous for humans and represents a positive element for society, because they help people. In this context, the complexity of the problems regarding both the construction and operation of robots as well as their management is evident.*
***State of development: book***
***Contact:*** *ovidiu.tirian@fih.upt.ro*
***Presentation link:*** *https://www.fih.upt.ro/personal/ovidiu.tirian/*

**20.**

***Title: ANNALS GEOGRAPHICAL SERIES MAGAZINE***
***Patent/project number: XXVIII***
***Author/s: Editor: PhD Associate Professor Elena Toma and Assistant Professor, Ph.D. candidate Eduardt Samoilă, Scientific editorial secretary: Assistant Professor, Ph.D. candidate Eduardt Samoilă***
***Institution: Hyperion University of Bucharest***
***Category: E***
***Description:*** *The Annals Geographical Series magazine appeared in 2004, 2 years after the establishment of the geography specialization, within the Faculty of History - Geography of the Hyperion University in Bucharest.*

*In 2022, the Annals Geographical Series magazine has completed 18 years of life being edited and printed throughout this period by the Transversal publishing house, CNCSIS accredited and specialized in the field of Geography and History.*

*Over time, the scientific committee has included academics, university professors, professors, specialists in: geography, history, ethnography, personalities who gave the magazine deep scientific approaches and special visibility in the Romanian university and scientific space.*

*The studies published by these outstanding personalities gave special importance to the magazine, contributing at the same time to the enrichment of the Romanian geographic scientific heritage.*

*The Annals Geographical Series magazine presents to people who are passionate about geography a series of information, some unique, related to the chosen theme or the results of the scientific research undertaken by the authors.*
***Contact: Bd. Calea Calarasilor, no. 169, Bucharest, Romania, Telephone: 0745 172 509,***
***Email:*** *transversaldifuzare@yahoo.com*

**21.**

***Title: THE LEAGUE OF STUDENTS FROM THE FACULTY OF ENGINEERING HUNEDOARA***
***Patent/project number: student organizations***
***Author/s: Olar Claudiu, Rif Raluca, Ciobanu Sergiu***
***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: E***
***Description:*** *The League of Students from the Faculty of Engineering Hunedoara was born in 1991, having 31 years of seniority in representing students.*

*We are members of ANOSR, (National Alliance of Student Organizations from Romania) which brings together under the same name most of the student organizations in Romania and aims to represent students both from the country and from abroad (ESU member), by carrying out several activities, such as be training workshops, student camps, and many others, activities in which active LSH members can also participate.*

*Also, LSH is a founding member of COSPOL (Convention of Polytechnic Student Organizations). The League of Students from the Faculty of Engineering Hunedoara - abbreviated LSH, is a legal entity under private law, without governmental, patrimonial purpose, which brings together, on the basis of free consent, students from all forms of education from the Faculty of Engineering in Hunedoara or other interested persons who comply with the provisions the statute.*
***State of development: student organizations***
***Contact:*** *raluca.777@yahoo.com*
***Presentation link:***
*https://instagram.com/lsh.ligastudentilorhunedoara?igshid=YmMyMTA2M2Y=*

**22.**

***Title: VERTICAL FARMING FOR YOUTH IN RURAL & URBAN COMMUNITIES***
***Project number: 2021-1-RO01-KA220-YOU-000029554***
***Author/s: Ciceoi Roxana, Venat Oana, Ivan Elena, Jerca Ovidiu, Mâcnea Cristina-Electra, Butcaru Ana, Vlad Ionela-Mituko, Lagunovschi-Luchian Viorica, Temocico Georgeta, Drăghici Maria, Bădulescu Liliana, Asănică Adrian, Stănică Florin***
***Institution: University of Agronomic Sciences and Veterinary Medicine of Bucharest***
***Category: E***
***Description:*** *Verti4You project aims to guide the NEET and fewer opportunities youth from Romania, Bulgaria, Italy and Greece to start a business in vertical farming, by delivering them 2 training materials, 5 hands-on training sessions, 5 modular, ready to use, vertical modules to produce microgreens and continuous guidance and support.*

*Two digital training packs on "Vertical farming " and "Social entrepr eneurship"; *1 Youth Wor kers & Trainers Mentoring Event , involving at least 16 youth worker s and 8 trainers; *4 blended lear ning,*

*teaching, and training mobilities for building vertic al modules and producing vegetables wi th those modules, involving at least 50 different young participants; *4 multiplier events, to reach a minimum of 320 people outside partn ers organizations; *ongoing manage ment of the project including 3 online and 3 physical transnational meet ings; creation and launch of project webpage and social accounts; four local stakeholders activities (1/partner) etc.*

***State of development: Implementation***

***Contact: Roxana Ciceoi, roxana.ciceoi@qlab.usamv.ro +40 721816194***

***Presentation link: http://vertifarms.eu***

**23.**

***Title: MAGNETIC GEL FOR CLEANING OF PAINTED SURFACES AND THE PROCESS OF OBTAINING AND USING IT***

***Patent/project number: A 2022- 00542 /06.09.2022***

***Author/s: Ion Rodica Mariana, Iancu Lorena, Grigorescu Ramona Marina, Ion Nelu***

***Institution: ICECHIM, Bucharest, Romania***

***Category: E***

***Description:*** *The invention refers to a magnetic gel, made of alginate, glycerin, chitosan, carboxymethyl cellulose and cobalt ferrite.*

*Magnetic gel is used for cleaning / restoration/ preserving the artifacts from the cultural heritage with painted surfaces, with the improvement of the chromatic characteristics of the painting surfaces, especially of the paper paintings.*

***State of development: product, prototype***

***Contact: rodica_ion2000@yahoo.co.uk***

***Presentation link: https://icechim.ro/en/***

**24.**

***Title: CLEANING COMPOSITIONS OF PAINTED SURFACES AND PROCEDURE FOR THEIR USE***

***Patent/project number: A 2022- 00744 /18.11.2022***

***Author/s: Ion Rodica Mariana, Tierean Mircea Horia, Croitoru Catalin, Munteanu Daniel, Iancu Lorena, Grigorescu Ramona Marina, Ion Nelu***

***Institution: ICECHIM, Bucharest, Romania***

***Category****: E - Teaching methods, Books, History and Cultural studies;*

***Description****: This invention refers to cleaning compositions of the painted surfaces, to the procedure of their use. Cleaning compositions include an ionic liquid based on phosphonium or ammonium salts or imidazolium or imidazolium or piperidinium, an aminoalcool, a non-ionic surfactant, with or without hydroxycellulose, and an amount of distilled water.*

***State of development****: product, prototype*

***Contact: rodica_ion2000@yahoo.co.uk***

***Presentation link: https://icechim.ro/en/***

**25.**

***Title: Ghidul tău în Chimie / Your Guide in Chemistry***
***Patent/project number: Student Project***
***Author/s: DRAGOȘ BUDIUL BERGHIAN***
***Institution: "Iuliu Haţieganu" University of Medicine and Pharmacy Cluj Napoca***
***Category: E***
***Description:*** *The material entitled "Ghidul tău în chimie" (Your Guide in Chemistry) is dedicated to the students who want to pass the entrance exam to Medicine, but also to the ones who wish to pass the Bacalaureat exam with 10 in a more effective way.*
*The material represents an easier way to deepen the knowledge in chemistry by its way to provide information. In addition, the material includes exercises for each chapter, in order to fix the knowledge.*
*The summary represents an opportunity to the young students to gain the necessary knowledge in order to become a part of the most prestigious fields.*
***State of development: Chemistry Guide***
***Contact:*** *dragosbudiulberghian@gmail.com*

**26.**

***Title: Importance of VET (Vocational Education & Training)***
***Patent/project number: Educational Project***
***Author/s: Prof. Dr. Anuja Malik***
***Institution: New era group of science and technology, New Delhi, India***
***Category: E***
***Description:*** *The term vocation indicates a particular industry or profession that defines a person's employment. Vocational education is regarded as technical teaching where youth gets to acquire practical skills and knowledge related to a particular trade.*

*Vocational education generally circles a specific field and helps the child gain related aptitude in a knack of time. The secondary and tertiary educational stages are determined to be the best period to receive this training.*

*An educational firm providing vocational education is termed a vocational school or a college of further education.*
*Importance of VET:*
*Helps Develop Career*
*Vocational education does not demand your child to spend time in academic explorations but provides them with a platform to work and gain practical knowledge.*
*Refines Skills*
*As children get to work despite spending time learning things theoretically they refine their skills and learn to deal with field-related responsibilities.*
*Adds Value to Your Degree*
*Pursuing vocational education training in a particular field adds value to your degree by adding actual work samples and experiences.*

*Helps Build Contacts*
*While pursuing the education the child gets to get involved in activities and perform on-site work that helps them build contacts at workplaces, with like-minded students and professors.*
***State of development: technical teaching***
***Contact:*** *anujamalik777@gmail.com*

# F - Medicine, Paramedical, Pharmacy, Cosmetics, Hygiene

**1.**

***Title:*** ***ALGORITHM FOR EARLY DIAGNOSIS OF SEPSIS / SEPTIC SHOCK BY ORAL VIDEOCAPILLARYOSCOPY***
***Patent/project number:***
***Author/s: Gabriel–Petre GORECKI, Elena RUSU, Cosmin MOLDOVAN, Lucian-Florin DOROBANȚU, Romina-Marina SIMA, Liana PLEȘ, Dana-Rodica TOMESCU, Daniel COCHIOR***
***Institution: Titu Maiorescu University of Bucharest, Faculty of Medicine***
***Category: F***
***Description:*** *The research project is based on a prototype device called "Digital Videocapilaroscope" which was the subject of patent number A00285 / 2018 and which received national and international validation through multiple awards from prestigious invention exhibitions in which it participated.*

*Videocapillaroscopy allows the visualization of microcirculatory alterations that appear early in patients with sepsis and thus a prompt treatment can be instituted for the benefit of patients with these diseases, avoiding the evolution towards critical forms. The methodology involved the following steps: image acquisition (videoclip of a predetermined length of 60 seconds), image processing for software interpretation (selection of frames considered relevant for examination) and uploading frames to the CVAT online platform (Computer Vision Annotation Tool) which follows the process of semi-automatic capillary marking, software analysis and interpretation of images.*

*The analyzed parameters were those that the prototype device had at its disposal to be able to identify: cap-vector (orientation of capillaries in relation to the mucosal surface), cap-microhem (presence or absence of microhemorrhages), cap-density (number of capillary loops visible per mm2) and cap-calibre (capillary loop diameter).*

*Revendications:*

*-identification of pathognomonic parameters (microcirculatory alterations) in patients with sepsis/septic shock;*

*-implementation of an early diagnosis protocol for septic shock based on video capillary examination;*

*-making the map of oral (sublingual) microcirculation in patients with sepsis / septic shock in various stages of evolution.*

***State of development: medical method***
***Contact:*** *gabygo2006@yahoo.com*
***Presentation link:*** *https://www.utm.ro/en/*

**2.**

***Title: PARALLEL ROBOT FOR THE RECOVERY OF LOWER LIMB MOBILITY***
***Patent/project number: Patent OSIM: RO133814 -B1/29.10.2021***
***Author/s: Doina Pîslă, Iosif Bîrlescu, Călin Vaida, Bogdan Gherman, Paul Tucan, Giuseppe Carbone, Nicolae Plitea***
***Institution: Technical University of Cluj-Napoca***
***Category: F***
***Description:*** *RAISE is a parallel robotic system with which you can recover the mobility of the 3 main joints of the lower limb (hip, knee, and ankle), by moving them, each segment of the lower limb being supported and moved in a controlled manner. RAISE presents a modular structure, having two modules, namely: a module designed to recover the flexion / extension and abduction / adduction of the hip and flexion / extension of the knee; the second module is attached to the first and is intended for the recovery of the dorsiflexion / flexion and inversion / eversion movements of the ankle.*
***State of development: prototype***
***Contact:*** *Liliana.Pop@staff.utcluj.ro*
***Presentation link:***
*https://research.utcluj.ro/tl_files/research/Research%20Domain/Industrial%20Engineering%20and%20Management/CESTER_Pisla.pdf*

**3.**

***Title: PARALLEL ROBOT FOR THE MOTOR REHABILITATION OF THE LOWER LIMBS***
***Patent/project number: Patent OSIM: RO133815 -B1/29.10.2021***
***Author/s: Doina Liana Plitea, Bogdan George Gherman, Iuliu Adrian Nadăş, Nicoleta Maria Pop, Cristea Florin Crăciun, Paul George Mihai Tucan, Liviu Calin Vaida, Giuseppe Carbone, Iosif Bîrlescu, Nicolae Plitea.***
***Institution: Technical University of Cluj-Napoca***
***Category: F***
***Description:*** *RECOVER is a parallel robotic system designed for the post stroke rehabilitation of the lower limbs for bedridden patients. The robotic system consists of two parallel robotic modules which are connected to each other to achieve the rehabilitation of the main joints of the lower limb. The first rehabilitation robotic module (the hip/knee module) is based on a 2-DOF (degree of freedom) planar mechanism, and it is designed for hip and knee flexion and extension. The second rehabilitation robotic module (the ankle module) is based on a 2-DOF spatial spherical mechanism which guides a mobile platform together with the patients' foot in spherical motion achieving the ankle flexion/extension and inversion/eversion motions.*
***State of development: prototype***
***Contact:*** *Liliana.Pop@staff.utcluj.ro*
***Presentation link:***
*https://research.utcluj.ro/tl_files/research/Research%20Domain/Industrial%20Engineering%20and%20Management/CESTER_Pisla.pdf*

**4.**

***Title: LAPAROSCOPIC INSTRUMENT FOR ACCURATE EXTRALUMENAL LOCATION OF A COLORECTAL TUMOR***
***Patent/project number: Patent OSIM: RO131186 -B1/29.04.2021***
***Author/s: Bogdan Mocan, Vasile Bintintan***
***Institution: Technical University of Cluj-Napoca***
***Category: F***
***Description:*** *The invention relates to a laparoscopic instrument which facilitates the accurate position of a tumor in the colon tract in the abdominal laparoscopic surgery and also with possible applications in open surgery.*

*Precise location of a rectal tumor is required to decide the appropriate line of distal resection but current methods like bimanual palpation is approximatively and very subjective, lacking the needed "surgical" precision.*

*The principle for precise identification of tumor location is that the tumor will be made "visible" for the laparoscopic instrument by placing sensing trackers close to its margins.*
***State of development: prototype***
***Contact:*** *Liliana.Pop@staff.utcluj.ro*
***Presentation link:*** *https://research.utcluj.ro/index.php/industrial-engineering-and-management-140.html*

**5.**

***Title: FAMILY OF PARALLEL MODULAR ROBOTS WITH ACTIVE TRANSLATION JOINTS FOR SILS SURGERY***
***Patent/project number: Patent application OSIM: A/00733/03.12.2021***
***Author/s: Doina Liana Pîslă, Iosif Bîrlescu, Călin Vaida, Paul George Mihai Tucan, Bogdan George Gherman, Nicolae Plitea***
***Institution: Technical University of Cluj-Napoca***
***Category: F***
***Description:*** *The present family of robots is designed for the single incision laparoscopic surgery, a type of minimally invasive surgery where the surgical instruments are inserted within the operating field through a single trocar.*

*The main feature of this family of robots is the use of parallel modules with 6-DOF (degrees of freedom) for the positioning of a mobile platform that guides the laparoscope. The mobile platform holds (mounted) two orientation platforms with 3-DOF for the surgical instruments.*

*The first solution of the family represents a 6-DOF parallel robot with rectangular frame and three identical kinematic chains, two of which are positioned vertically and the third in a horizontal position.*

*The second solution represents a 6-DOF parallel robot with triangular frame and three identical kinematic chains mounted in a horizontal plane using a triangular configuration.*
***State of development: prototype***
***Contact:*** *Liliana.Pop@staff.utcluj.ro*

***Presentation link:***
***https://research.utcluj.ro/tl_files/research/Research%20Domain/Industrial%20Engineering%20and%20Management/CESTER_Pisla.pdf***

***6.***

***Title: FAMILY OF MODULAR ROBOTS FOR SILS SURGERY WITH KINEMATIC CONSTRAINT OF THE INSERTION POINT IN THE BODY***
***Patent/project number: Patent application OSIM: A/00734/03.12.2021***
***Author/s: Călin Vaida, Doina Liana Pîslă, Iosif Bîrlescu, Bogdan George Gherman, Paul George Mihai Tucan, Nicolae Plitea***
***Institution: Technical University of Cluj-Napoca***
***Category: F***
***Description:*** *The present invention relates to a family of hybrid robotic systems designed for single incision laparoscopic surgery, which is a type of minimally invasive surgery, where all the surgical instruments are inserted through a single trocar. The main feature of this family of robots is the use of a cartesian module with 3-DOF (degrees of freedom) for the positioning of the mobile platform, which in turn holds (mounted) three platforms with 3-DOF for the surgical instruments' orientation. The first solution of the family is a robotic system composed of a Cartesian module and three parallelogram modules for the instruments orientations. The second solution of the uses the same Cartesian positioning module and three spherical modules for the orientation of the instruments.*
***State of development: prototype***
***Contact:*** ***Liliana.Pop@staff.utcluj.ro***
***Presentation link:***
***https://research.utcluj.ro/tl_files/research/Research%20Domain/Industrial%20Engineering%20and%20Management/CESTER_Pisla.pdf***

***7.***

***Title: EARLY CLARY SAGE (Salvia sclarea L.) variety AMBRIELA***
***Patent number: MD 392/ 2022.04.30***
***Authors: GONCEARIUC Maria, BALMUS Zinaida, COTELEA Ludmila, BOTNARENCO Pantelimon, BUTNARAS Violeta***
***Institution: Institute of Genetics, Physiology and Plant Protection***
***Category: F***
***Description:*** *Ambriela variety are distinctive by: Physiological properties: Very good resistance to wintering; high resistance to drought; resistant to foliar diseases and root system diseases. Quality properties: Essential oil content: first year of vegetation: 0.353% (standard humidity, 70%); 1.175% (dry substance); second year of vegetation: 0.335% standard humidity; 1.185% dry substance. Major components in essential oil: linalyl acetate 61.06%, linalool, 8.59%, sclareol, 5.25%. Production capacity: variety of 2-3 years of vegetation; flowering capacity in the first year of vegetation. Average harvest of raw material in 2 years of plantation operation – 16.1 t / ha, average production of essential oil - 55.6 kg/ha.*

*Yield – 3.1-4.1 kg essential oil/ton of inflorescences. Applications: Agriculture, perfumery, cosmetics, medicine. Advantages: Resistance to biotic and abiotic factors, high productivity, high quality.*
***State of development: product***
***Research was carried out within the project 20.80009.5107.07/PS financed by the NARD.***
***Contact:*** *zinaidabalmus@yahoo.com*
***Presentation link:*** *https://igfpp.md/en*

*8.*

***Title: Superforte Ovulin E-lite Apicoplant Nutriforte Ovulin***
***Patent/project number: RO19408257***
***Author/s: Adriana Vlad & E-LITE Team***
***Institution: S.c. E Lite Nutritia S.r.l.***
***Category: F***
***Description:*** *E-lite Nutrition came into existence after Adriana Vlad laid the scientific foundations of natural preparations tested and experienced by her, as a result of serious health conditions, such as sterility. It started from the principle that "any therapeutically active substance is much stronger and more valuable if it is combined with honey". Thus, he demonstrated that "therapeutically active substances from plants, if they are well dosed and if they are combined in bee honey, are assimilated much more easily by the body, because they enter the blood more quickly".*

*The range of E-LITE solid creams (ovules), Superforte Ovulin, E-lite Apicoplant, Nutriforte Ovulin, are 100% natural products that help alleviate the manifestations of disorders of the female genital system. With a strong anti-inflammatory, anti-tumor, anti-infective, decongestive, soothing, cicatrizing, trophic, antimycotic, hormonal and vaginal PH regulating action. Through their unique and particularly complex composition, they contribute significantly to the regulation of hormonal levels and vaginal PH, they prevent and have a beneficial effect on the symptoms of the female genital system, they have positive effects in cases of infections, inflammations, cysts and fibroids in the female genital system. They are beneficial in conditions such as Candida, Trichomonas, E-coli, cystitis, cervical wound, vaginal and uterine polyp, tumor in the genital area, vaginitis, Papilloma virus infection, menstrual irregularities, sterility, mycosis, fibromastosis.*
***State of development: Products***
***Contact:*** *elite.nutritia@yahoo.com* ***+40726 761 557***
***Presentation link:*** *https://elitenutritia.ro/*

*9.*

***Title: MANAGEMENT ALGORITHM FOR PREGNANT WOMEN WITH HEPATIC IMPAIRMENT***
***Patent/project number: research project***
***Author/s: Cristina-Daciana Oana Teodorescu[a], Gabriel Petre Gorecki[b], Andrei George Teodorescu[c]***

***Institution: a "Saint John" Emergency Clinical Hospital - Bucur Maternity, Department of Anaesthesia and Intensive Care, Bucharest Romania; b "Titu Maiorescu" University, Faculty of Medicine and Pharmacy, Bucharest, Romania; c University of Oradea, Faculty of Medicine and Pharmacy, Department of Morphological Sciences, Oradea, Romania***
***Category: F***
***Description:*** *This invention consist in the development of a management algorithm for pregnant women with hepatic impairment, having the main goal to evaluate (from an epidemiologic point of view) obesity in pregnancy and the impact of this condition on all the connected issues that will be seen in the newborn during peri and postpartum period. This project wishes to create a management algorithm for obese parturient with hepatic impairment for an easy and rapid monitoring of the pregnant woman. It will be used as a mobile app especially by the specialists, but it can be used by the patients as well.*

*Novelties:*

1. *The development of an early diagnosis protocole for hepatic impairment for the obese pregnant women.*
2. *Mobile app with an easy interface, with comprehensive informations.*
3. *Promotion of a tracking system for newborn complications due to hepatic impairment of the mother.*
4. *First epidemiologic system for tracking and evaluating obesity for pregnant women.*

*This management algorithm for tracking the hepatic impairment in pregnant obese population will be used by gynecologists, but it will be a mobile app so that this patient monitoring will be set in real time for both the pregnant women and newborn wellbeing.*
***State of development: medical method***
***Contact:*** *cristina.teodorescu2001@gmail.com*
***Presentation link:*** *https://www.uoradea.ro/The+University+of+Oradea*

**10.**

***Title: BIOMECHANICAL ANALYSIS APPLICATION USEFUL IN THE DEVELOPMENT OF CUSTOMIZED PROSTHESES***
***Patent/project number: student project***
***Author/s: Dimitrie-Cristian FODOR***
***Institution: Doctoral School of "Gheorghe Asachi" Technical University of Iaşi, „Dr. Iacob Czihac" Military Emergency Clinical Hospital of Iasi***
***Category: F***
***Description:*** *In order to customize prostheses for amputees, it is necessary to determine the patient's biomechanical parameters. Currently, these parameters can be measured by clinical, direct, radiological, and experimental methods, but no application does this automatically. In this paper, a software application designed and tested in LabVIEWTM was developed.*

*The application allows entering the anthropometric data of the patient (height and weight) and can provide a series of results in strict connection with the three result areas of the graphical interface of the application: Subject parameter control panel (input data is entered - the weight and height of the patient);*

*Anthropometric data display panel (displays the weight and length of the following segments of the human body: head&neck, torso, upper arm, lower arm, hand, thigh, calf, foot); Biomechanical parameters display panel (displays the values of the following parameters: radius of gyration – k (m), moment of inertia of the mass – I (kg·m2), location of the center of gravity – COG (m)).*

*The digital system can come to the aid of specialists in the field of prosthetics in order to quickly estimate some biomechanical parameters, without resorting to expensive and time-consuming equipment.*

***State of development: Software application - prototipe***

***Contact: +40758944223, cristifodorbim@gmail.com***

***Presentation link: https://www.linkedin.com/in/cristian-fodor-bim***

***11.***

***Title: BLOOD GROUP DETECTION AND PREDICTION TOOL WITH APPLICATIONS IN BIOLOGY***

***Patent/project number: student project***

***Author/s: Elena-Iuliana FODOR***

***Institution: "Alexandru Ioan Cuza" University of Iaşi, Faculty of Biology***

***Category: F***

***Description:*** *For medical reasons, it is very important to know the blood group, especially in the case of transfusion when it is necessary that the recipient is compatible with the donor. The determination of this parameter is done by biomedical blood analysis, but digital blood group prediction applications are also useful.*

*In this paper, an application was developed to find out the blood group and predict the blood groups of the children of parents with known A, B, O blood group. The application was implemented in Microsoft Office – Excel.*

*The application presents a user-friendly graphical interface and comprises two important areas. The first is a panel for entering the known data of the parents (male and female): the blood group phenotype, the genotype which can be homozygous or heterozygous and the chromosomes specific to the individuals (XX – female; XY – male).*

*The second area refers to the results obtained by combining the previously mentioned input data and these indicate the possible sex or blood type in the A, B, O system of the individual based on the known blood types of the parents.*

*The application can be useful in counseling individuals planning to start a family. Thus, possible fatal complications for the fetus or mother can be avoided by simply determining the compatibility of the individuals.*

***State of development: Digital tool - prototype***

***Contact: 0749630541, elenaifodor@gmail.com***

***Presentation link: https://www.linkedin.com/in/iuliana-fodor***

**12.**

***Title: BIOCOMPATIBLE THIN FILMS BASED ON THIN METALLIC GLASSES USED IN ORTHOPEDY***
***Patent: A100544/07.09.2022***
***Author/s: Alina Vladescu, Anca C. Parau, Catalin Vitelaru, Lidia R. Constantin, Iulian Pana, Mihaela Dinu***
***Institution: National Institute of RD for Optoelectronics INOE2000***
***Category: F***
***Description:*** *The invention relates to preparation of ternary biocompatible thin films metallic glasses based on ZrCu-X, where C can be one of the elements Ca, Mg, Mo, Si, Sr, by cathodic arc evaporation method used for coating of orthopaedic implants.*

*Thin films are amorphous with 2 µm thickness, adherent to substrates and hard (10 -20GPa), with contact angle ranged from 115º to 134º. Thin films are resistant to corrosion in SBF at 37 °C, with a high protection efficiency (>58%) and good biomineralization abilities in SBF and DMEM solutions, having the adsorption of bovine serum albumin (BSA) higher than the uncoated surfaces. The Zr-based metallic glass coatings are uniform and they are covering the entire surface, regardless of the substrate.*

*The coatings deposited on Ti6Al4V substrate showed a better corrosion behaviour than those on 316L substrate. The cracks can be seen on the surface both coatings, being more evident in the case of those on 316L substrate.*

*The presence of air-pockets on surface of ZrCuSr shows the rougher surface.*
***State of development: experimental models***
***Contact: Alina Vladescu*** *alinava@inoe.ro* ***021.457.57.59***
***Presentation link:*** *https://www.inoe.ro/en/*

**13.**

***Title: UTILIZATION OF GREEN COCONUT (COCOS VIRIDIS) IN THE MANUFACTURE OF BATH SOAP IN PREVENTING THE SPREAD OF THE COVID-19 VIRUS***
***Patent/project number: 20-09-2022***
***Author/s: Adelardo Tsabat Chalada Abidin; Raihan Zaky Ramadhan; Agung Rizki Darmawan; Muhammad Farras Najmudin Rifa'i; Fatrah Erlangga Pratama***
***Institution: INTERNATIONAL STANDART SCHOOL OF AMANATUL UMMAH, INDONESIA***
***Category: F***
***Description:*** *In coastal area there are many coconut trees, one of which is green coconut. Green coconut that has many benefits for this skin is very suitable for use as a bath soap, with an excellent content for the skin in brightening the skin and cleaning dirt. While in the pandemic era now many people are looking for prevention so as not to contract the covid-19 virus.*

*For example, masks that used to be before the pandemic occurred are very rarely used by the public because it is considered not too important. But now, in every corner of the world everyone has been wearing masks, because it is considered very important as a prevention effort against the covid-19 virus.*

*This also happens in hand sanitizer and hand washing soap which is usually only used to wash hands after eating.*

*However, it is likely that the virus does not only stick to the hands, because the hand is one of the limbs that has a high possibility to touch the other limbs.*

*Therefore, soap that is spread with surfactants that are able to kill the virus makes soap with green coconut extract more useful in the pandemic era.*

*The importance of maintaining cleanliness in this pandemic era will add value to the benefits of this soap. The ease of finding green coconuts gave rise to the idea to process green coconut as a bath soap to maintain cleanliness while preventing the spread of covid-19 that is sweeping the world.*

***State of development: Product***
***Contact: 0817-7091-4129***
***Presentation link:*** *https://m.facebook.com/profile.php?id=155082084679786*

***14.***

***Title: HERCIDE (Herbal Larvicide)***
***Patent/project number:***
***Author/s: Kevan Vallerio Anwar, Brian Alvarico Anwar, Dilan Cyrillo Anwar***
***Institution: SMA Negeri 3 Semarang, SMP Negeri 2 Semarang, SD Hj. Isriati Baiturrahman 1 Semarang, Indonesia***
***Category: F***
***Description:*** *This is the product of Larvicide, HERCIDE (Herbal Larvicide), made from three different herbal medicine leaves. The effectiveness is Larvicide compared to tamepos.*
***State of development: Product***
***Contact: kevanvallerio06@gmail.***
***Presentation link: https://youtu.be/8PxoIyhsQNI***

***15.***

***Title: E-luineensis: UTILIZATION OF PALM OIL REED WASTE AS AN ALTERNATIVE TO BEANCURD AND AS A LOWERING CHOLESTEROL LEVEL IN THE BLOOD***
***Patent/project number: EC00202271463***
***Author/s: Jesalyn Grecya Rasnitara Tarigan***
***Institution: SMA Negeri 2 Palangka Raya, Indonesia***
***Category: F***

***Description:*** *E-Luineensis is a product made from 100% palm oil umbut waste, without any mixture of other ingredients. That has the potential to reduce cholesterol levels, increase the body's antioxidant activity and prevent the occurrence of various types of degenarative diseases. This product is used as an alternative to beancurd and can reduce LDL cholesterol levels in the blood through the 3-hydroxy-3methylglutaryl-CoA (HMG-CoA) inhibitor process.*

*The research treatment are consist of 3 phases : Phase I by conducting organoleptic tests carried out on processed oil palm umbut products (Elaeis guineensis Jacq.) is a preference quality test (hedonic quality) and a preference test (hedonic). Phase II used an exploratory method to obtain a powdered extract of simplicia oil palm umbut (Elaeis guineensis Jacq.) Phase III used the Completely Randomized Design (CRD) method.*

***State of development: Product***
***Contact: 0817-7091-4129***
***Presentation link:*** *https://youtu.be/aC86lilBrEY*

***16.***

***Title: QVibe (Dispozitive pentru terapie magnetică)***
***Patent/project number: No 009015340-0001***
***Author/s: Senior Lecturer Dr. Miloicov Bacean Oana Codruta***
***Institution: HOLISTIC LOUNGE SRL***
***Category: F***
***Description:*** *QVibe- frequency generating device*
*Q Vibe is a frequency generating device an inovative concept made out of vibrations/frequencies that are imprinted on it, the final result is a special, unique algorithm, modified according to the pathologies of the patients.*

*It is successfully used în balanceing certain pathologies, it contributes to the state of health' s optimization, according to the improvement of the clinical and paraclinical paramethers.*

*The algorithm is a unique concept, made out of special frequencies, imprinted in a special order, according to the patient's pathologies; Q Vibe is a unique device, energetically imprinted, that will optimize the state of health.*

***State of development: Registered 06/05/2022, No 009015340-0001***
***Contact: +40745170879***
***Presentation link:*** *https://fb.watch/gAVRS0E08x/*

***17.***

***Title: NANOMEDIATED STRATEGIES FOR TREATMENT OF CHIMIOTHERAPY-INDUCED CARDIAC REMODELATION IN HER-2 POSITIVE BREAST CANCER PATIENTS.***
***Patent/project number: PhD thesis***
***Author/s: Diana Gonciar-Rus, Teodora Mocan, Carmen Cionca, Lucia Agoston-Coldea***
***Institution: University of Medicine and Pharmacy Cluj-Napoca, Romania***

***Category: F***
***Description:*** *Chimiotherapy is known to induce cardiac remodelation , with variouse intensities of fibrosis development. We herely propose a nanostructured approach consisting in administration of gold nanoparticles functionalized with chitosan and epidermal growth factor. The combination demonstated efficiency in reducing fibrosis formation in cardiac mucle during chimiotherapy. The effects are targetted to intensely HER-2 positive cells, enabling EGF binding. Also, the therapeutic benefit is brought by chitosan.*
***State of development: Prototype***
***Contact:*** *Diana.Gonciar@umfcluj.ro*
***Presentation link:*** *http://www.umfcluj.ro/en/*

***18.***

***Title: POTENTIAL USES OF NANOPARTICLES IN INFLAMMATORY ANEMIA OF CRITICAL ILLNESS***
***Patent/project number: PhD thesis***
***Author/s: Robert Szabo, Mocan Teodora***
***Institution: University of Medicine and Pharmacy Iuliu Hatieganu Cluj-Napoca***
***Category: F***
***Description:*** *Cytokines exert an effect locally as well as at distance. In the liver for example, a protein called hepcidin is transcribed which blocks ferroportin, the sole cellular iron exporter and results in hyperferritinemia and inflammatory anemia (IA). If uncontrolled, inflammation produces cytokine storm (CS) with devastating results. Although IL 6 is believed to be central, we propose a wide spectrum of other potential mechanisms for IA and CS, as well.*
***State of development: Idea, Model***
***Contact:*** *szabo.robert@elearn.umfcluj.ro*
***Presentation link:*** *http://www.umfcluj.ro/en/*

***19.***

***Title: MULTIPLE NANOMEDIATED TARGETTING APPROACH FOR COLORECTAL CANCER***
***Patent/project number:***
***Author/s: Stefan Titu, Mocan Teodora , Alexandru Irimie***
***Institution: Iuliu Hatieganu University of Medicine and Pharmacy Cluj-Napoca, Romania***
***Category: F***
***Description:*** *Recently discovered and characterised structures present in colorectal cancer have demonstrated signifficant impact in disease evolution, progression and cancer-associated death. Higher metastatic behaviour, increased progression is assocated with several newly discovered membrane domains.*

*Interestingly,many of them present a cysteine-rich segment. We hereby propose a multiple-target strategy based on binding gold nanoparticles through –S-S-groups to the Cys moieties of signifficant membrane cassettes.*

***State of development: Model***

***Contact:*** *stefan.titu@ymail.com*

***Presentation link:*** *http://www.umfcluj.ro/en/*

**20.**

***Title: MULTI SPECIALIZED MENTAL HEALTH TREATMENT TECHNIQUES***

***Patent/project number: Psychology Cabinet***

***Author/s: Ţârlea Luiza Tudora***

***Institution: Individual Psychology Cabinet Ţârlea Luiza Tudora***

***Category: F***

***Description:*** *Mental health is at least as important as physical health. Digitalization has led humanity in a direction opposite to human nature, where there are no feelings, there is no affection, there are only codes, people's appreciations are numbers, and politeness or respect can be avoided by masking us in a profile that can allow us to discharge some pulsations, while being protected.*

*Latest studies show us that we live in a time of the pinnacle of evolution and yet we are sadder than ever. We find now information on all sites, these are declarative knowledge... but how many of us have that procedural knowledge (how to do what we have read)? Specifically how many of us know the theory, but can't put it into practice? That's what psychologists and therapists, are for.*

- *My specialization in clinical psychology can help you identify and understand certain personality disorders, appetite disorders, lack of motivation , hyperactivity, a lack of sleep, or a state of persistent drowsiness with the lack of rest, anxious, depressive states, and of course, we can work together to cure all this.*
- *Applied psychology in the field of national security is another specialization that I approach with a lot of passion, after applying psychometric tests I can analyze people's ability to use lethal or non-lethal weapons and ammunition, whether it is a job (a guardian) or a hunting passion*
- *If you don't know exactly what kind of job would suit you, or if you do not know which field in the labor market would be right for you, or maybe you're already working in a company and need training and improvement you and/or your colleagues. Did you ever experienced burnout? with the specialization Work and Organizational Psychology I can make an organizational diagnosis and I can also apply the psychometric tests and techniques for a good analysis of people and positions, as well as I can help the company to make an effective selection and recruitment of qualified personnel.*
- *Transport psychology, as its name implies, is that specialization that I have and with which I can give approvals for enrollment in the driving school.*
- *Last but not least, the specialization of simulated behavior detection by polygraph technique is still a controversial topic for many people, but after 2 years of study, I can guarantee you that it is an effective*

*testing, especially for those who do not believe in the accuracy of the "pencil-sheet" tests (so common used in cabinets.)*

*Therefore, in my office is no lack of safety offered to clients through professional secrecy, understanding, empathy, compassion, respect, effective and barrier-free communication as well as the necessary tools to obtain accurate results according to the specialization approached.*

***State of development: In progress***

***Contact: +40727413914 luiza_tudora@yahoo.com***

***Presentation link: https://www.facebook.com/PsihologLuiza***

**21.**

***Title: NEW MOLECULAR INHIBITORS OF PROLIFERATION OF HUMAN RHABDOMYOSARCOMA RD Cells***

***Patent/project number: MD 4764/2021.08.31; MD 4778/2022.07.31***

***Author/s: Aurelian GULEA, Vasilii GRAUR, Olga GARBUZ, Emil CEBAN, Irina USATAIA, Victor ȚAPCOV, Lilia ANDRONACHE, Valentin GUDUMAC***

***Institution: Moldova State University***

***Category: F***

***Description:*** *The invention relates to chemistry and medicine, namely to the biologically active coordination compounds of the class S-alkylisothiosemicarbazonates of transition metals and can find application in medicine for the prophylaxis and treatment of rhabdomyosarcomas. The claimed compounds inhibit the proliferation of human rhabdomyosarcoma RD cells 8.75-28 times more effectively than the prototype and 4.25-13.6 times more active than the structural analog.*

***State of development: Laboratory.***

***Contact: Tel.: +373 69127593; E-mail: guleaaurelian@gmail.com***

***Presentation link: https://usm.md/?lang=en***

**22.**

***Title: NEW ANTIBACTERIAL AGENT AGAINST ACINETOBACTER BAUMANNII***

***Patent/project number: MD 4810/2022.06.30***

***Author/s: Aurelian GULEA, Vasilii GRAUR, Victor ȚAPCOV, Greta BĂLAN, Vasile LOZAN***

***Institution: Moldova State University***

***Category: F***

***Description:*** *The invention relates to chemistry and medicine, namely to the use of a coordinating copper compound from the thiosemicarbazonate class of transition metals.*

*This complex shows high antimicrobial activity against bacteria of the Acinetobacter baumannii species that exceeds 16 times the activity of the prototype and can find application in medicine and veterinary medicine as an antimicrobial preparation.*

***State of development: Laboratory.***
***Contact: Tel.: +373 69127593; E-mail: guleaaurelian@gmail.com***
***Presentation link: https://usm.md/?lang=en***

**23.**

***Title: METHOD FOR PRODUCING ANTIBACTERIAL POLYMERIC MATERIAL***
***Patent/project number: MD 4799/2022.10.31***
***Author/s: Ştefan ROBU, Paul GHIOCA, Lorena IANCU, Viorel PRISĂCARI, Veronica SAVA, Petru SPATARU, Pavel ŢIULEANU***
***Institution: Moldova State University***
***Category: F***
***Description:*** *This paper describes a process for obtaining a polymeric material with antibacterial properties by direct interaction of chlorhexidine solutions with block-polymers styrene-butadiene grafted with 3% maleic anhydride, in a quantitative ratio of copolymer and chlorohexidine of 1: (0.3-0.6). As a result, an antibacterial polymeric material was synthesized with 4-5 times lower cost than those described in the literature.*

*It has been shown that the antibacterial polymeric material possesses antibacterial activity close to the activity of chlorohexidine and has an action time 2-3 times longer than that of chlorohexidine. The bactericidal activity time reaches up to 3 days. Individual films can be obtained from the synthesized polymeric material that can be administered on the tissues of the human or animal body.*
***State of development: Research project.***
***Contact: Ştefan Robu, E-mail: s.v.robu@mail.ru***
***Presentation link: https://usm.md/?lang=en***

**24.**

***Title: MODULATION OF THE IMMUNE STATUS USING NATURAL BIOACTIVE PRINCIPLES FOR THE PREVENTION AND PROPHYLAXIS OF ACUTE INFECTIONS IN THE CONTEXT OF THE COVID-19 PANDEMIC***
***Patent/project number: 20.70086.06/ COV(70105)***
***Author/s: Iurie BACALOV, Elena CHIRIŢA, Adriana DRUŢA, Ana BÎRSAN, Ana ILIEŞ, Victor CIOCÎRLAN, Aurelia CRIVOI***
***Institution: Moldova State University***
***Category: F***
***Description:*** *The purpose of the investigations consisted in the valorification of biologically active substances with an immunomodulatory effect, the strengthening of the immune system by them, with the possibility of further use in medicine, for the prevention of diseases and the prophylaxis of acute infections, determined by COVID-19, on the background of carbohydrate metabolism disorders.*

*The development of preparations based on biologically active compounds from plants and beekeeping products have allowed their use for medicinal and food purposes, a fact that argues the importance of scientific studies within the addressed problem. Thus, the natural solutions for maintaining the immune response represent, at present time, a special interest and have become the object of study of the present researches.*

*As a result of the given study, we can conclude the following: One of the risk groups in the context of SARS COV-2 infection is diabetes mellitus, a pathology characterized by dysregulation of metabolism, as well as immunity. The administration of natural phyto- and apipreparations contributes to their normalization, which is expressed by the reduction, until the disappearance, of the primary symptoms and, respectively, reduces the risk of complications, caused by acute infections. The clinical-functional results highlighted the hypoglycemic and immunomodulatory effect of biopreparations, which are very important both in diabetes and in some viral infections.*

***State of development: Research project.***

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***Presentation link: http://dspace.usm.md:8080/xmlui/handle/123456789/4987***
***https://asm.md/sites/default/files/2021-09/Rezumat%20%20A-Crivoi.pdf***

**25.**

***Title: THE FORMATION OF THE MEDICAL LANGUAGE***

***Patent/project number: PhD thesis***

***Author/s: Găianu-Luca Oana***

***Institution: "George Emil Palade" University of Medicine, Pharmacy, Sciences and Technology from Târgu Mureș***

***Category: F***

***Description:*** *This project is a study upon the origin of the medical language. Medicina disciplina antiqua est". Medical terminology includes in its system the following compartments: anatomical, histological, clinical and pharmaceutical. The word "clinical" comes from the Greek language, "kline" which translates to "bed", "inclination". According to Hippocrates' conception, the bed of the sick one had to be arranged, tilted so that the head was in a plane higher than the legs, in order to favor the functioning of the cardiovascular system (although this idea was later challenged by doctors). According to Greek tradition, the bedridden patient was put out on his way, so that he could talk to passers-by, explaining to them the states he has, asking if they had heard of people who were in his situation and how they were healed. The sufferer was encouraged by people, who also offered him advice, showing him how to treat himself. This leads to the appearance of the term "clinicus" which has several meanings, such as a person who comes to visit the sick person, suffering bedridden or even a person who prepares the grave of the sick person in bed.*

***State of development: PhD research***

***Contact: oanagaianu@yahoo.com***

***Presentation link: https://www.umfst.ro/en/home.html***

**26.**

***Title: DIETARY SUPPLEMENTS AND COSMETICS***
***Author/s:* Ilzsu - ker Kft. Péterné Varga (Kiskőrös)**
***Institution: Idea Club 13 Association, Hódmezővásárhely, Hungary***
***Category: F***
***Description:*** *Hair grower, cholesterol cleaner and cell stimulator. Face creams: argan oil, hyaluronic acid and silicone, the latter is recommended for people over 40 years old.*
***State of development: product***
***Contact:*** *otletclub.idea@freemail.hu*
***Presentation link:*** *https://otletclub.5mp.eu/web.php?a=otletclub*

**27.**

***Title: CONCENTRATED MOUTHWASH CONTAINING AN EXTRACT ENRICHED WITH ACTIVE INGREDIENTS OBTAINED FROM GRAPE POMACE, LEAVES, AND TENDRILS FROM VITIS VINIFERA***
***Patent/project number: A/00730/16.11.2020***
***Author/s: Mirela-Liliana Moldovan, Cătălina Bogdan, Daniela Benedec, Sonia Meda Iurian***
***Institution: University of Medicine and Pharmacy "Iuliu Haţieganu" Cluj-Napoca***
***Category: F***
***Description:*** *The invention represents a concentrated mouthwash containing a new combination of biocompatible and biodegradable ingredients with an extract enriched in antioxidant, antimicrobial, and anti-inflammatory phytocompounds obtained from white pomace, red pomace, tendrils, and leaves from Vitis vinifera.*

*The concentrated mouthwash is intended to maintain the health of the oral cavity and improve early symptoms of periodontal disease.*
***State of development: patent application***
***Contact:*** *mmoldovan@umfcluj.ro catalina.bogdan@umfcluj.ro*
***Presentation link:*** *http://www.umfcluj.ro/en/*

**28.**

***Title: ULTRASONIC CLEANER***
***Patent/project number: student project***
***Author/s: Babii Mihai, Dragomir Ioan Sebastian, Vira Andrei***
***Institution: Lucian Blaga University of Sibiu***
***Category: F***

***Description:*** *This project proposes the design of a device that has the role of cleaning various small objects (watch, bracelet, spectacle frames, etc.) using vibrations (waves). The device is shaped like a parallelepiped with a pocket inside. A certain amount of water is introduced into this space. In the water, insert the object we want to clean.*

*Using the same principle of creating vibrations as a mobile phone, using a small electric motor with a shaft that is provided at the end with a device with an unevenly distributed weight (such as a cylinder cut in half).*

*When the shaft rotates, vibrations occur in one of the walls. This produces strong waves that move through the water and clean the deposits on the object. An electronic timer will be displayed on an exterior wall of the cleaner for the duration of the process. After the cleaning process is completed, the water is removed from the cleaner.*

*By pressing a button on the outside, a small fan installed inside a wall will blow air through two vents that open when the button is pressed to dry the object. The cleaner is connected to a power source.*

***State of development: prototype***

***Contact:*** *sebastiani.dragomir@ulbsibiu.ro*

***Presentation link:*** *https://www.ulbsibiu.ro/en/*

**29.**

***Title: AUTO-CLEANING AND STERILIZATION GARBAGE CAN***

***Patent/project number: student project***

***Author/s: Gaston Maria- Cristina, Horga Bogdan- Dumitru, Hera Stefan- Danut***

***Institution: Lucian Blaga University of Sibiu***

***Category: F***

***Description:*** *This project aims to make the medical system cleaner by providing a self-cleaning and sterilizing garbage can, using UV lights and a special washing fluid to kill all bacteria and viruses.*

*The garbage comes with 2 UV lights on the interior of the cover near the fluid dispenser, which will rotate to fully clean all surfaces. The fluid is to be introduced from outside of the cover in the dispenser.*

*After the washing stage, the fluid will be eliminated in the lower part from where it should be thrown out. The cleaning process ends within 5 minutes, 1.5 minutes for washing and 3.5 minutes for the UV lights to sterilize.*

*The advantages of this project include a cleaner medical system, a lower chance of spreading diseases and also an easier way of washing garbage cans considering the fact that even with disposable garbage bags they can get contaminated.*

***State of development: prototype***

***Contact:*** *maria.gaston@ulbsibiu.ro bogdan.horga@ulbsibiu.ro stefandanut.hera@ulbsibiu.ro*

***Presentation link:*** *https://www.ulbsibiu.ro/en/*

**30.**

***Title: SKIN CARE RANGE-NEEMIOLI***
***Patent/project number: Student project***
***Author/s: Panduru Simona-Luci***
***Institution: Politechnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: F***
***Description:*** *The Neemioli range includes the following products:*
*1. Neemioli soap, regular and strong variants.*
*Cold prepared soap with Neem oil and Spirulina & Moringa powder.*
*Action:*
*- strong antibacterial;*
*- potent antifungal;*
*-antiparasitic for skin and scalp;*
*- skin regenerator;*
*- repellent for ticks, flies, mosquitoes and fleas.*
*2. Nourishing and healing cream with Neem oil and laurel oil.*
*Recommendations:*
*- adjuvant in the treatment of bacterial or fungal skin infections;*
*- improvement of skin problems: acne, eczema, psoriasis, herpes;*
*– healing of minor wounds, rashes, mycoses.*
*3. Moisturizing cream with Neem oil. Recommendations: hand and heel care.*
***State of development: handmade products***
***Contact:*** *simona.dumitru@student.upt.ro*
***Presentation link:*** *https://www.facebook.com/profile.php?id=100057329783574*
*https://www.youtube.com/channel/UCeohOZajLuT44HrpToQF9hw*

**31.**

***Title: MEDITATION AND YOGA FOR CONCUSSION RECOVERY***
***Patent/project number: Yoga and mindfulness***
***Author/s: Herdiana Dewi Nurfika***
***Institution: Bliss Education Center, Indonesia***
***Category: F***
***Description:*** *A concussion is a form of traumatic brain injury, caused by a bump, blow or jolt to the head that causes the brain to move rapidly inside the skull. It can affect you physically, emotionally and mentally. You might have heard the term before in connection with professional athletes, but the fact is that concussions are much more common than most people realize. In fact, according to the CDC, approximately*

*1.4 to 3.8 million sports and recreation-related concussions occur in the United States each year--that's about one every 10 seconds!*

*After suffering a concussion, you may be worried about what will happen if you don't take care of yourself.*

*The truth is, there are risks to not properly recovering from a concussion, including:*

*- Temporarily experiencing more sensitivity to light, sound, and feeling like your head is moving when it's not;*

*- Increased risk of being injured again.*

*Taking care of yourself after a concussion is much more than just resting. In fact, the rest required to recover from a concussion isn't really rest at all, because you'll actually have to be quite active in order to heal properly.*

*The brain is an organ, and like other organs it needs oxygen-rich blood to survive. Without it, cells start to die within minutes, and with severe enough hypoxia (a lack of oxygen), permanent damage can occur within minutes or hours.*

*When you suffer a concussion, your brain suffers mild hypoxia because the neurons are no longer receiving as much blood as they need. If you don't give your body time to heal this damage, the hypoxia will turn into cerebral hypoxia (when blood flow is low enough that even neurons dependent on less oxygen begin to die) which can cause irreversible brain damage.*

*Research by Rebecca Acabchuk and colleagues at the University of Connecticut found that yoga, meditation or other mindfulness-based interventions resulted in significant improvement of symptoms compared with controls, as improvements seen in mental health, physical health, cognitive performance and quality of life.*

*Physiologic pain after a brain injury may contribute to disordered sleep and anxiety, which can then exacerbate the physical symptoms in a continuous feedback cycle.*

*Yoga and mindfulness can interrupt those feedback loops by acting on both the emotional processes (stress, anxiety and depression) and physiological mechanisms.*

*For example, yoga has been shown to increase brain-derived neurotrophic factor, a protein that helps heal neurons in the brain.*

*It also activates the vagus nerve, which regulates internal organ functions and vasomotor activity, and affects immune, inflammatory and other pathways.*

*Taken together, these actions can prime the body and brain for healing.*

***State of development: yoga technic***

***Contact:*** *herdianadewinurfika@gmail.com*

***Presentation link:*** *https://www.canva.com/design/DAFRx2bCrZ0/X-PVtdspoEIIfYoHiM9t5g/watch?utm_content=DAFRx2bCrZ0&utm_campaign=designshare&utm_medium=link&utm_source=publishsharelink*

**32.**

***Title: PROCESSES FOR SPIRULINA BIOMASS PRODUCTION - RAW MATERIAL FOR THE DEVELOPMENT OF ANTIOXIDANT ANTIBACTERIAL AND IMMUNOMODULATING AGENTS***
***Patent/project number: no. 4796 MD/2022.02.28 and no. 4542MD/2018.07.31.***
***Author/s: Rudi Ludmila, Chiriac Tatiana, Cepoi Liliana, Rudic Valeriu, Djur Svetlana, Zinicovscaia Inga, Valuța Ana, Miscu Vera, Rotari Ion, Cepoi Anastasia, Taşcă Ion, Iushin Nichita.***
***Institution: Public Institution Institute of Microbiology and Biotechnology, Republic of Moldova.***
***Category: F.***
***Description:*** *The inventions refer to bionanotechnology, in particular to processes for biomass production of cyanobacterium Spirulina platensis. The proceedings provide the cultivation of Spirulina platensis using water soluble silver nanoparticles - AgNPs with a size of 5 nm in a concentration of 0,10-32,5µM. The result of the inventions consists in increasing the production of safety spirulina biomass and biologically active compounds content in biomass. In addition, the processes ensure the obtaining of biofunctionalized silver nanoparticles with properties that can be distinguished from the unmodified ones, and also to benefit to the maximum from the unique biological properties of the biomolecules in spirulina.*

*This allows to obtain raw material for the development of antioxidant antibacterial and immunomodulating agents. Areas of application: Nanotechnology, Bionanotechnology, Medicine - Health Care-Cosmetics and Pharmaceutical Industry. The research was carried out within the project 20.80009.5007.05, funded by NARD.*
***State of development: The implementation of process is carried out within the Institute of Microbiology and Biotechnology in Phyobiotechnology laboratory, Institute of Physiology and Sanocreatology in Physiology of stress, Adaptation and General Sanocreatology Laboratory and PhD thesis.***
***Contact: Rudi Ludmila, e-mail: rudiludmila@gmail.com***
***Presentation link: https://imb.md/en***

**33.**

***Title: "Survival Therapy Kit" – Kit for the treatment of ailments, through therapies based on classical acupuncture (TCM – Traditional Chinese Therapy), applied with the help of passive resonant devices "EMCOPAD Doctor Tech"***
***Patent/project number: RO132423A2 - WO2018/037378***
***Author/s: SC Doctor Tech SRL, Velcea Marian, Moldovan Ion-Corneliu, Plotog Ioan, Mihăilescu Bogdan, Hideg Cătălin***
***Institution: "Justin Capră" Association***

***Category: F***
***Description:*** *The "Survival Therapy Kit" contains a "Practical Guide" for recommending therapeutic procedures (organized alphabetically for more than 100 common conditions), a set of 200 pieces of EMCOPAD devices (Doctor Tech passive resonant electromagnetic patches) and adhesive rolls for attaching the devices to the body of the treated person. The devices are applied periodically on the acupuncture points recommended in the therapy of the diagnosed condition.*
***State of development: concept***
***Contact:*** *marian.nicolae.velcea@gmail.com*

***34.***

***Title: BIORESONANT KNEEPAD FOR FUNCTIONAL RECOVERY***
***Patent/project number: RO132423A2***
***Author/s: SC Doctor Tech SRL, Velcea Marian, Moldovan Ion-Corneliu, Caracas Eugen, Curta Ioan, Mândrea Lucian***
***Institution: "Justin Capră" Association***
***Category: F***
***Description:*** *The bioresonant kneepad is a device designed for the functional recovery of the knee consisting of an elastic support that surrounds the knee, on which two groups of bioresonant devices EMCOPAD Doctor Tech are assembled. Regular use of the device in a supervised recovery procedure ensures a faster return to previous performance. Energy measurements performed with specialized equipment confirm the improvement of the state of the knee after the use of bioresonant kneepad.*
***State of development: product***
***Contact:*** *marian.nicolae.velcea@gmail.com*

***35.***

***Title: "Col-Kefir-Milk Therapy" cosmetic series***
***Patent/project number: A 00826/28.11.2019***
***Author/s: SC Laboratoarele Medica SRL, Moraru Angela, Moraru Ionuț, Bahrim Gabriela-Elena, Vasile Aida-Mihaela, Cotârleț Mihaela, Oancea Anca***
***Institution: "Justin Capră" Association***
***Category: F***
***Description****: The COLKEFIR-Milk Therapy cosmetics range contains probiotics. Probiotics are living microorganisms that populate the skin and influence its health in a beneficial way (Lactobacillus brevis - producer of succinic acid that has antibacterial, anti-inflammatory properties, moisturizes the skin, provides antioxidant protection and also accelerates cell renewal).*

*Our skin is home to millions of bacteria, viruses and yeasts, which provide protection against harmful environmental influences (pollution, harmful bacteria, UV radiation, etc.). If we support the skin's*

*protective function and keep these cultures in balance, the skin will be protected against free radicals and harmful substances and the quality, texture and hydration capacity of the skin will improve.*
***State of development: products***
***Contact:*** *ionutmoraru@pro-natura.ro*

***36.***

***Title: BIORAFINATION OF LATERAL FLOWS RESULTING FROM THE SALE OF CYPRINIDS – COLSTIM***
***Patent/project number: A 00826/28.11.2019***
***Author/s: SC Medica Farmimpex SRL***
***INCDSB – The National Institute of Research and Development for Biological Sciences Bucharest***
***ICECHIM – The National Institute for Research & Development in Chemistry and Petrochemistry Bucharest***
***Institution: "Justin Capră" Association***
***Category: F***
***Description:*** *The aim of the project is to increase the competitiveness of the coordinator company, Medica Farmimpex (MED), and the economic beneficiaries of the products resulting from the project, by assimilating RDI results and by strengthening the partnership with research units in the field of Bioeconomy – Biotechnology.*

*The results of the project are high value-added products obtained, through an integrated extractive biotechnology, from the lateral flows of the marketing of fresh cyprinids. The innovative character of the project is given by the way in which it is proposed to use as plant biostimulant polypeptides with a molecular weight higher than 5 KDa, with over 40-50 amino acid residues, recovered during the production of collagen hydrolyzate. It has recently been reported that such polypeptides applied as seed/soil treatment are a very good biostimulant for vegetables. In this project it is proposed to use such polypeptides as a coating agent, to produce granular fertilizers with controlled release.*
***State of development: products***
***Contact:*** *ionutmoraru@pro-natura.ro*

***37.***

***Title: ECOLOGICAL EXTRACTS FROM BURDOCK WASTE - OBTAINING PROCESS AND POTENTIAL THERAPEUTIC USE***
***Patent/project number: A00187/12.04.2022***
***Author/s: Alina Ortan, Simona Spinu, Radu Claudiu Fierascu, Anda Baroi, Irina Fierascu, Toma Fistos***

***Institution: National Institute for Research & Development in Chemistry and Petrochemistry – ICECHIM Bucharest***
***Category: F***
***Description:*** *The present invention relates to a plant extract obtained from a species of the genus Arctium, with concomitant antioxidant and antimicrobial properties. The process according to the invention involves the use of the microwave-assisted extraction method, followed by concentration on a rotary evaporator and freeze-drying.*

*The plant extracts are obtained through a process with good extraction efficiency of the active principles, the product obtained is ecological and natural, it presents simultaneously two types of therapeutic action: antioxidant and antimicrobial, it has potential applications in natural treatments for topical use. This work was supported by a grant of the Romanian Ministry of Education and Research, CCCDI-UEFISCDI, project number PN-III-P3-3.5-EUK-2019-0226, contract 220/2020 within PNCDI III. It is also acknowledged the support of Ministry of Research, Innovation and Digitization through Program 1 - Development of the national research-development system, Subprogram 1.2-Institutional performance- Projects to finance excellence in RDI, Contract no. 15PFE/2021.*
***State of development: patent application, laboratory***
***Contact:*** *fierascu.radu@icechim.ro* ***Fierascu Radu Claudiu (Technical Manager)***
***Presentation link:*** *https://icechim.ro/en/*

***38.***

***Title: PROCEDURE FOR OBTAINING OF MOUTH-WASH FOR PREGNANCY GINGIVITIS***
***Patent/project number: RO135708 A2***
***Author/s: Stoleriu Gabriela, Branisteanu Daciana Elena, Sandu Ion, Matei Madalina Nicoleta, Sandu Andrei Victor, Balan Gheorghe, Sandu Ioan Gabriel, Fratila Dragos Nicolae***
***Institution: Romanian Inventors Forum***
***Category: F***
***Description:*** *The invention relates to a process for obtaining mouthwash for pregnancy gingivitis, with multiple implications in the hygiene of the oral cavity and for the prevention of dental caries and the treatment of diseases of the oral cavity, for use in the pharmaceutical and cosmetic industries.*
***State of development: laboratory/prototype***
***Contact:*** *euroinvent@yahoo.com*
***Presentation link:*** *http://www.afir.org.ro/*

***39.***

***Title: SURFACE ACOUSTIC WAVE BIOSENSOR BASED ON GRAPHENE FUNCTIONALIZED WITH ANTI-ALPHA-FETOPROTEIN MONOCLONAL ANTIBODY, FOR THE DIAGNOSIS OF LIVER CANCER***

***Patent: RO 00208 /2022***
***Author/s: VOICU Ioan Stefan, PALLA-PAPAVLU Alexandra, ANTONIAC Vasile Iulian, MICULESCU Florin, SEMENESCU Augustin, COSTOIU Mihnea Cosmin, MATES Ileana-Mariana, PRISECARU Delia -Alexandra***
***Institution: University POLITEHNICA Bucharest, ROMANIA, EU***
***Category: F***
***Description:*** *The invention relates to the creation of a control device capable of assessing the quality of tree trunks by a method which does not involve their damage. This is useful for identifying and deciding which trees are healthy and which are affected by various structural problems and need to be cut down. The mechanical ultrasonic device for controlling the quality of the standing shafts, according to the invention, consists of: impact head, active part of the impact head (changes after wear), drive unit (electric motor plus transmission mechanism), four acoustic sensors, sliding sensors, shaft strap, circumference adjustment mechanism, control circuit box and power supply, connectors, tablet with evaluation software, evaluation software.*

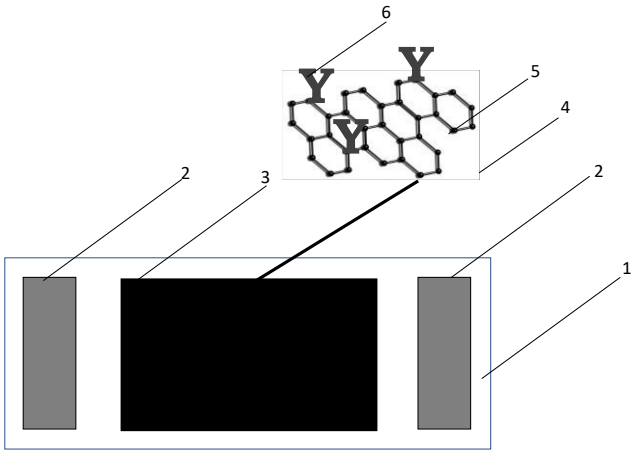


*Fig. 1. The scheme of the biosensor with active material graphene functionalized with anti-alpha-fetoprotein monoclonal antibody that is deposited on the surface of the bio sensor with surface acoustic waves (SAW) by direct laser-induced transfer (LIFT):*
*(1) Quartz plate, (2) Au electrodes, (2) a functionalized graphene film, (4) Sensory coating, (5) Graphene, (6) Monoclonal antibody*
***State of development: In vivo trials***
***Contact: Professor Habil. Dr.eng. Stefan Ioan VOICU*** *stefan_ioan.voicu@upb.ro*
***Presentation link:*** *https://upb.ro/en/*

**40.**

***Title: SELF-INJECTION SYRINGE FOR THE ADMINISTRATION OF ANTIDOTES WITH AN INNOVATIVE ACTIVE SUBSTANCE RELEASE SYSTEM***

***Patent: RO 00232 /2021***
***Author/s: Cristina Anca SECARĂ, Ionuț DUMITRACHE, Bogdan PĂTRINICHI, Adrian Claudiu POPA, Aurelian ZAPCIU, Cătălin Gheorghe AMZA, Diana Popescu, Augustin SEMENESCU***
***Institution: University POLITEHNICA Bucharest, ROMANIA, EU***
***Category: F***
***Description:*** *The main object of the present invention is to present an innovative solution for an intramuscular injection antidote delivery device which is compact, robust and versatile, and can be provided with various volumes of active substance for injection.*

*The technical problem solved by the invention consists in the realization of an auto-injector type device for the administration of antidotes in the post-exposure treatment in case of chemical attacks.*

*This device must be easy to handle and carry (compact) and be made of a sturdy construction to be reliable.*
***State of development: Functional prototype***
***Contact: Professor Habil. Dr.eng. Catalin AMZA*** ***catalin.amza@upb.ro***
***Presentation link:*** ***https://upb.ro/en/***

***41.***

***Title: REVITALIZING THERAPY THROUGH MASSAGE TECHNIQUES***
***Patent: RO19408257***
***Author/s: Adriana Vlad***
***Institution: S.c. E Lite Nutritia S.r.l.***
***Category: F***
***Description:*** *Revitalizing Therapy includes several combined massage techniques: To diagnose - Acupressure and Reflexology; To unlock circulatory system - Lymphatic massage; To treat rheumatic pains - Therapeutic massage; To relax the body - Relaxation massage; To dissolve fat and cellulite - Anti-cellulite massage; To stimulate the good functioning of the internal organs - Visceral massage. All in one session of approximately 1 hour, restores all systems and the whole body.*

*Acupressure and reflexology*
*Each organ has a corresponding reflex point in the sole or on the face or back.*
*Pressing these points detects certain health conditions at an early stage - energy blockage.*
*The consistent massaging of these points stimulates the proper functioning of the corresponding organs.*
*The same happens with internal organelles. Visceral massage involves a technique of stimulation and good functioning of the organs (liver, bile, kidneys, pancreas, uterus, ovaries, etc.).*
*Lymphatic, therapeutic and relaxation massage bring well-being to a person with health conditions or very stressed.*

*It is recommended this therapy to all people who feel devitalized, tired, and sick. The technique is applied together with special oils and body butters, BIO, with suction cups and bamboo sticks.*

***State of development: Revitalizing Therapy***
***Contact: elite.nutritia@yahoo.com +40726 761 557***
***Presentation link: https://fb.watch/hhKd-TD89Q/***

**42.**

***Title: MOVEMENT IDENTIFICATION AND SUPPORT DEVICE FOR THE RIGHT ARM FOR PERSONS WITH MOBILITY PROBLEMS***
***Patent number: OSIM A00101/18.02.2019***
***Author/s: Marius-Nicolae RÎSTEIU, Monica LEBA, Andreea Cristina IONICĂ***
***Institution: University of Petroşani***
***Category: F***
***Description:*** *The invention aims to provide a device for identifying and supporting the movement of the right arm for people with mobility problems.*
***State of development: prototype***
***Contact: pdragos_74@yahoo.com***
***Presentation link: https://www.upet.ro/en/***

**43.**

***Title: BURNOUT STATUS IDENTIFICATION AND ALARMING SYSTEM***
***Patent number: State of Israel Patent Office, no. 270751 / 18.11.2019***
***Author/s: Yonnis NASSAR, Andreea Cristina IONICĂ, Monica LEBA***
***Institution: University of Petroşani***
***Category: F***
***Description:*** *A system consisting of two devices, one portable for identifying and alarming the occurrence of burnout and the second for setting / reading the initial / measured data, by the specialist.*
***State of development: prototype***
***Contact: pdragos_74@yahoo.com***
***Presentation link: https://www.upet.ro/en/***

**44.**

***Title: IDENTIFICATION OF MUTATION IN GBA GENE WITH VIETNAMESE PARKINSON PATIENTS: REVEALING ONE NOVEL MUTATION***
***Patent number: in process of patent registration***
***Author/s: (a) Nguyen Quang Minh, (b) Nguyen Phuong Nhi, (c) Nguyen Thai Bao Ninh (d) Dang Tran Bao Anh, (d) Tran Minh Anh***

***Institution: (a) Pham Hong Thai High School, (b) Tran Nhan Tong High School, (c) Nguyen Binh Khiem High School, (d) Archimeds Secondary School, Vietnam***
***Category: F***
***Description:*** *GBA mutations are, to date, the most common genetic risk factor for Parkinson's disease. The GBA gene encodes the lysosome enzyme Gcase. Parkinson's disease patients with GBA mutations have a modest reduction in age-of-onset of disease and a greater incidence of cognitive decline. GBA gene mutation accounts for 2-30% of Parkinson's disease patients, based on much research with different ethnicities and geologic regions.*

*GBA gene mutation search on Parkinson's patients holds great importance in finding disease conditions and serves as a basis for clinical doctors to make a prognosis and give consultation. This study found that 5/35 patients carry GBA gene mutation (taking up 14.29%) with four different types of mutations, including two splicing sites, one missense, and one nonsense mutation. All variables are mutant zygotes, and nucleotide substitutions. There was one novel mutation c.814G>T (Glu272*), which has not been reported in the Clinvar data bank.*
***State of development: prototype***
***Contact:*** *info@tisias.org*
***Presentation link:*** *https://www.tisias.org/*

***45.***

***Title: Application of Realtime-PCR method to evaluate TMPRSS2 nasopharyngeal expression in Vietnamese COVID-19 patients***
***Patent number: in process of patent registration***
***Author/s: (a) Le Ha Phuong, (b) Pham Ha My, (c) Hoang Dang Gia Han, (d) Tran Minh Duy (d) Nguyen Hoang Phuc***
***Institution: (a) High School for the Gifted, Hanoi National University of Education, (b) Viet Duc High School, (c) Phan Huy Chu High School, (d) Giang Vo Secondary School, Vietnam***
***Category: F***
***Description:*** *TMPRSS2 are two crucial proteins of the host cell membrane helping SARS-CoV-2 viral infection to cause COVID-19 disease. TMPRSS2 cleaves the S protein at the S1/S2 and S'2 sites for membrane fusion after binding the viral spike (S) protein to ACE2 as a receptor. This study aimed to evaluate the expression of nasopharyngeal TMPRSS2 upon admission in relationship with the subsequent clinical course during hospitalization of COVID-19 patients.*

*The RNA expression of TMPRSS2 was higher (1.36 fold) in the severe group compared with mild patients (p = 0.0004). TMPRSS2 gene expression in the nasopharyngeal mucosa may promote the severity of COVID-19 patients but requires further study in larger samples*
***State of development: prototype***
***Contact:*** *info@tisias.org*
***Presentation link:*** *https://www.tisias.org/*

**46.**

***Title: Researching the antibacterial ability of Helicobacter pylori and making hard capsules to support the treatment of stomach diseases from Sanchezia speciosa***
***Patent number: in process of patent registration***
***Author/s: NGO NGOC NHI, NGUYEN DUC QUYNH ANH, NGUYEN KIM TRINH***
***Institution: Lao Cai High School for Gifted Students, Vietnam***
***Category: F***
***Description:*** *Helicobacter pylori is identified as the primary cause of the most stomach-related diseases, thus killing HP is considered as an important therapy in the treatment of stomach diseases. Based on traditional remedies to treat stomach diseases, we chose the research topic: Researching the antibacterial ability of Helicobacter pylori and making hard capsules to support the treatment of stomach diseases from Sanchezia speciosa.*
***State of development: prototype***
***Contact:*** *info@tisias.org*
***Presentation link:*** *https://www.tisias.org/*

# G - Agriculture, Veterinary medicine

**1.**

***Title: POTENT FUNGICIDE FROM MOMORDICA CHARANTIA WASTE FOR MUSHROOM PROTECTION***
***Patent/project number: LY 2022 P01650***
***Author/s: Muhammad Ikmal Sirozi, Noor Hasyierah Mohd Salleh, Zarina Zakaria, Norhidayah Abd Aziz, Siti Aminah Mohd Hassan, Nur Umi Masjida Ahmad Fauzi***
***Institution: .Universiti Malaysia Perlis***
***Category: G***
***Description:*** *Mushroom is well known as a superfood owing to their nutritional contents and health benefits. It has been listed as one of the high-value crops under Malaysia's National Agro-Food Policy (2021-2030). In Malaysia, the grey oyster mushroom (GOM), Pleurotus pulmonarius receives the highest demand due to its great flavor, low management cost, and ease of cultivation. However, it is constantly affected by a group of green mold fungi such as Thricoderma sp., Aspergillus flavus and Penicilium citrinum. The infection has caused dramatic losses in grey oyster mushroom production, qualitatively and quantitatively. The most common treatment to inhibit the infection on the mushroom bag namely chemical and physical methods. However, both treatments are leftover chemical's concern, ineffective and timely, hence, reducing the productivity of mushrooms. Green control using the seed extract of Momordica charantia, is a good alternative as the extract contains a rich amount of antioxidant and antifungal protein known as alpha momorcharin.*

*The protein-based bio fungicide has successfully inhibited the growth of green mold fungi and promoted the mushroom's pin head development. The application provides an eco-friendly solution and supports the demand for organic farming as well as minimizes profit loss to entrepreneurs.*
***State of development: Research project***
***Contact:*** *hasyierah@unimap.edu.my*
***Presentation link:*** *https://www.unimap.edu.my/index.php/en/*

**2.**

***Title: METHOD OF RECOVERY FROM WHEY OF PROTEIN CONCENTRATES ENRICHED WITH BETA-LACTOGLOBULIN***
***Patent number: MD 8407, 2022.06.15***
***Author/s: Bologa Mircea, Vrabie Elvira, Sajin Tudor, Paladii Irina, Policarpov Albert, Vrabie Valeria, Stepurina Tatiana, Sprincean Catalina***
***Institution: Institute of Applied Physics***

***Category: G***
***Description:*** *The invention relates to the dairy industry and, in particular, to a method for producing a protein-mineral concentrate (PMC) from whey enriched with beta-lactoglobulin (β-Lg) at the electroactivation of whey carried out in two variants:*

1. *The electroactivation of whey was carried out by cyclic power supply of the electrolyzer with a current with a cycle duration of 60s and an interval between cycles of 10s, while the PMC was collected from the foamy phase at pH values of 8.00 - 11.00, which allows the recovery of β-Lg of about 72% at the current density j=10mA/cm² (fig.1. $E_1$) and of about 57% at j=20mA/cm² (Fig.1. $E_2$).*
2. *The electroactivation of whey was carried out by a continuous power supply of the electrolyzer with current, while the PMC was collected from the foamy phase at pH values of 8.00 - 9.00, which allows the recovery of β-Lg of about 59% at the current density j=10mA/cm² (Fig.1. $E_3$) and of about 38% at j=20mA/cm² (Fig.1. $E_4$).*

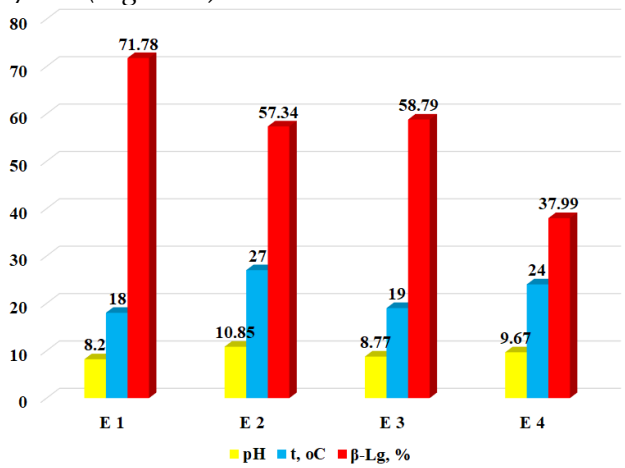


***Figure 1.***

***State of development: method***
***Contact:*** *vrabie657@yahoo.com elvira.vrabie@ifa.md*
***Presentation link:*** *https://ifa.md/en*

***3.***

***Title: "AMETIST" - rhizogenic interspecific genotype (V. vinifera (2n=38) x M.rotundifolia (2n=40))***
***Patent number: 364/2021.06.30***
***Authors: ALEXANDROV Eugeniu, BOTNARI Vasile, GAINA Boris***
***Institution: Institute of Genetics, Physiology and Plant Protection***
***Category: G***
***Description:*** *Amethyst - interspecific grapevine genotype resistant to phylloxera and can be grown on its own roots, as well as for expanding the northern limit of grapevine plantations. The created variety withstands extreme temperatures during the winter period and can be grown vertically, pergolas, arches, etc. It shows good growth and ensures the formation of competitive harvests even in conditions with high*

*temperatures above the multi-annual norms with low precipitation during the summer, on lands with low creditworthiness, etc. The Ametist variety can be used in the creation of ecological grapevine plantations.*
***State of development: product.***
***Research was carried out within the project 20.80009.5107.03/PS financed by the NARD.***
***Contact:*** *alexandrov.eugeniu@gmail.com*
***Presentation link:*** *https://igfpp.md/en*

**4.**

***Title: PROCESS FOR INCREASING THE STORAGE CAPACITY (STORABILITY) OF PLUM FRUITS***
***Patent number: 2021.12.21/s 2021 0107***
***Authors: BUJOREANU Nicolae, NICUTA Alexandru, HAREA Ivan***
***Institution: Institute of Genetics, Physiology and Plant Protection***
***Category: G***
***Description:*** *The invention relates to agriculture, in particular to horticulture, and can be used to increase the harvest, the quality and the storage capacity of fruit, as well as the reduction of the process of dehydration of the fruits of autumn plum varieties during the storage period.*
***State of development: Scientific product***
***Financial support from National Agency for Research and Development, project no 20.80009.5107.18/PS***
***Contact:*** *bujoreanu.apple@gmail.com*
***Presentation link:*** *https://igfpp.md/en*

**5.**

***Title: NEW TOMATO VARIETIES Solanum lycopersicum L. MIA***
***Patent number: 308 from 2019.08.31***
***Authors: SIROMEATNICOV Iulia, BOTNARI Vasile, COTENCO Eugenia, CHIRILOV Elelonora***
***Institution: Institute of Genetics, Physiology and Plant Protection, Chisinau, Republic of Moldova***
***Category: G***
***Description:*** *The vegetation period is 89-105 days; it is the medium early variety. The fruit is orange color, round-slightly elongated with weigh 49.0-52.0 g, 2-3 seminal lodges. Fruits with high taste qualities, the dry substance content of the fruits is 5.9-6.5%, sugars 6.2-7.6%, ascorbic acid 42.7 - 50.1 mg/%, titratable acidity 0.29-0.35 mg/%. The total harvest of tomato fruit consists 50.2-55.8 t/ha and standard fruit yield 44.9-53.7 t/ha.*
***State of development: product***
***Research was carried out within the project 20.80009.5107.03/PS financed by the NARD.***
***Contact: e-mail:*** *iulia.siromeatnicov@igfpp.md*
***Presentation link:*** *https://igfpp.md/en*

*6.*

***Title: BIOLOGICAL, CHEMICAL AND BIOTECHNOLOGICAL RESEARCH OF SAFFLOWER***
***Project number: 16.80013.5107.06/6097STCU***
***Authors: IVANOVA Raisa, SMEREA Svetlana, ANDRONIC Larisa***
***Institution: Institute of Genetics, Physiology and Plant Protection***
***Category: G***
***Description:*** *The purpose of research is diversification of safflower germplasm by in vitro culture and experimental mutagenesis in order to increase the bio-morphological characters and content of biologically active substances. THE RESEARCH RESULTED in new genotypes of safflower which were obtained by seeds irradiation with different doses of gamma rays and selection by in vitro culture, field and greenhouses cultivation of plants There was developed the scheme for obtaining of proliferative callus, in vitro induction of morphogenesis in order to diversification of the morphological characters The variation of quantitative indexes of safflower plants was influenced by both the radiation dose and cultivation conditions The most important practical results of this study are the description of morpho physiological and biochemical characteristics of new genotypes and methodology of safflower multiplication.*
***State of development: Research project***
***Research project 6097 supported by Science & Technology Center in Ukraine***
***Contact:*** *ralivanova@yahoo.com*
***Presentation link:*** *https://igfpp.md/en*

*7.*

***Title: METHOD OF ADJUSTMENT OF THE SEED METERING DEVICES WITH GROOVED CYLINDERS***
***Patent: MD s 2022 0031***
***Authors: Dr. hab. Valerian CEREMPEI, Dr. Victor ȚÎȚEI, Dr. Mihai GADIBADI***
***Institution: "Alexandru Ciubotaru" National Botanical Garden (Institute) , Republic of Moldova***
***Category: G***
***Description****: The invention refers to methods of adjustment of the seed metering devices with grooved cylinders that are used in seed drills and differ from others in the simplicity of their design and their reliability, as well as functional universality, being intended to adjust the seeding rate of new and non – traditional grass, cereals, legumes, technical and vegetable crops, and to adjust the amount of fertilizers applied in the agri-food sector and grasslands cultivation, particularly, the invention refers to the method of determining the optimal interval of parameter configuration of metering devices with grooved cylinders.*
***State of development: scientific product - Financial support from National Agency for Research and Development, project no. 20.80009.5107.02***
***Contact:*** *cerempeivalerian@gmail.com gradinabotanicachisinau@gmail.com*
***Presentation link:*** *https://gbni.md/en*

*8.*

***Title: The cultivar 'MIHAELA' of plume poppy Macleaya cordata (Willd.) R.Br.***
***Patent: MD 00014/2022.05.05***
***Author: Dr. Victor ȚÎȚEI***
***Institution: "Alexandru Ciubotaru" National Botanical Garden (Institute), Republic of Moldova***
***Category: G***
***Description:*** *The cultivar „ MIHAELA" is multi-purpose crops with medicinal, melliferous, ornamental, energy mass applications. Herbs possess antitumor, anti-inflammatory, insecticidal and antibacterial activities, leaves content of BAS: sanguine 7.3-9.0 mg/g and chelerythrine 6.0-8.0 mg/g. Melliferous plant – beekeeping season July-August, production potential 180-200kg/ha honey. Energy stem dry biomass for solid biofuel: briquettes with specific density 780-830 kg/m3 and pellets with specific density 960-975 kg/m3, the gross calorific value reaches 18.8-19.1 MJ/kg and 1.5-2.0% ash content, as well as utilized as a substrate to obtain cellulosic ethanol with a potential of 533 l/t.*
***State of development: scientific product - Financial support from National Agency for Research and Development, project no. 20.80009.5107.02***
***Contact:*** *vic.titei@gmail.com gradinabotanicachisinau@gmail.com*
***Presentation link:*** *https://gbni.md/en*

*9.*

***Title: The new cultivar „VIGOR" of milkvetch, Astragalus galegiformis L.***
***Patent: MD 0006/2019.02.19***
***Author: Dr. Victor ȚÎȚEI***
***Institution: "Alexandru Ciubotaru" National Botanical Garden (Institute , Republic of Moldova***
***Category: G***
***Description****: The cultivar „Vigor" of milkvetch, Astragalus galegiformis L., is highly growth and development rate leguminous perennial crop, suitable for the phyto-amelioration and the valorification of marginal, eroded and polluted lands. The green mass yields (2-3 cuts per season) achieved 55-70 t/ha with 49-57% leaves, the nutritive value of the dry matter from 1-st cut vas: 23.4% CP, 24.8% ADF, 40.1% NDF, 3.1% ADL, 12.6% ash, 18.8 %TSS, 16.1 % hemicellulose and 21.7% cellulose, with 87.5 % DDM, 87.5 % ODM, RFV= 161 with 11.1 MJ/kg ME and 7.18 MJ/kg NEL. The harvested green mass may be used as co-substrates in biogas plants with biochemical methane potential 370 L /kg VS, but the stems after harvesting the seeds may be used for production of the densified biofuel (briquettes) with specific density 810-848 kg/m3, gross calorific value 18.1-18.8 MJ/kg and 1.5-2.3% ash content. This cultivar„Vigor" is a source of pollen and nectar for bees in May –June that makes it possible to obtain 90-100 kg/ha of honey.*
***State of development: scientific product - Financial support from National Agency for Research and Development, projec no. 20.80009.5107.02.***
***Contact:*** *vic.titei@gmail.com ateleuta@gmail.com gradinabotanicachisinau@gmail.com*
***Presentation link:*** *https://gbni.md/en*

**10.**

***Title: The research project "Mobilization of plant genetic resources, plant breeding and use as forage, melliferous and energy crops in bioeconomy" in the State Program priority II: Sustainable agriculture, food security and food safety; strategic direction: Cultivars and hybrids of high-productivity agricultural, technical and fodder crops.***
***Project number: 20.80009.5107.02, Financing contract 42/1 PS***
***Author: Project Manager Dr. Victor ȚÎȚEI***
***Institution: "Alexandru Ciubotaru" National Botanical Garden (Institute) and National Agency for Research and Development, Republic of Moldova***
***Category: G***
***Description:*** *During the implementation of the research project (2020-2022), the collection of honey plants was founded, the collections of fodder and energy plants mobilized from different floristic regions were enriched with new taxa, the agrobiological peculiarities and quality indices were evaluated. Four new cultivars with multiple uses were registered in the Catalogue of Plant Varieties and patented by the State Agency on Intellectual Property of the Republic of Moldova; two cultivars of non-traditional crops were submitted for state testing and patenting.*

*The results of scientific and innovative research were presented at 20 scientific events and 11 editions of international and national invention salons; 3 guides for agricultural producers were drafted and edited, and 70 scientific articles were published, including 2 articles in ISI journals and 26 articles in indexed journals from the Web of Science Core Collection databases, and were awarded 18 gold medals, 2 silver medals, 2 bronze medals and a 2 special prizes. The research results were also presented in 12TV/Radio shows.*

***State of development: scientific product - Financial support from National Agency for Research and Development, project no. 20.80009.5107.02.***
***Contact:*** *vic.titei@gmail.com gradinabotanicachisinau@gmail.com*
***Presentation link:*** *https://gbni.md/en*

**11.**

***Title: INTELLIGENT SYSTEM FOR OPTIMIZING THE APPLICATION OF HYTOSANITARY TREATMENTS IN FIELD CROPS***
***Patent / project number: National Patent Application No. A-00712 / 2022***
***Author/s: Gheorghe Gabriel, Marin Eugen, Manea Dragoș, Vasilachi Carmen, Anghelache Dragoș***
***Institution: National Institute for Research - Development of Machines and Installations designed for Agriculture and Food Industry***
***Category: G***
***Description:*** *The invention refers to an intelligent system for optimizing the application of phytosanitary treatments in field crops, intended for the landing, charging of batteries and the liquid tank of unmanned aerial vehicles (drones) for the application of phytosanitary treatments.*

*The majority of drone users for the application of phytosanitary treatments use the field around the crop in order to land, causing a lot of dust in the area, due to the currents produced by the drone, for filling the tank they use a classic system without precise dosage control and for the battery charging system most*

*use a charging system using an electric generator. The technical problem solved by the invention consists in creating a system that helps to optimize the process of using drones to apply phytosanitary treatments in field crops, by using a towed platform, which provides support for landing, energy independence and a semi-automated system for filling tank without coming into contact with the phytosanitary substance. The system is made in the form of a platform and can be adapted for almost any model of drone to apply phytosanitary treatments in field crops.*
***State of development: Experimental Model***
***Contact: +40-21-269.32.55 / icsit@inma.ro***
***Presentation link: www.inma.ro***

***12.***

***Title: BLACK BOX FOR ELECTRIC VEHICLES WITH ENCRYPTED DATA STORAGE ON SD CARD***
***Patent / project number: National Patent Application No. A-00690 / 2022***
***Author/s: Perișoară Lucian-Andrei (UPB), Matache Mihai, Săcăleanu Dragoș-Ioan (UPB), Voicea Iulian, Dănișor Cosmin-Răzvan (UPB), Vasile Alexandru (UPB)***
***Institution:National Institute for Research - Development of Machines and Installations designed for Agriculture and Food Industry***
***Category: G***
***Description:*** *The invention relates to an electronic device of the black-box type, which is mounted on an electric vehicle, which allows the acquisition of the operating parameters of the ECU electronic control units from the CAN communication bus, as well as the encrypted storage of the data on a non-volatile memory, for further analysis, interpretation and diagnosis.*
***State of development: Experimental Model***
***Contact: +40-21-269.32.55 / icsit@inma.ro***
***Presentation link: www.inma.ro***

***13.***

***Title: MOUNTING AND PROTECTION SYSTEM OF THE PHYTOSANITARY PRODUCT RECOVERY PANEL OF THE SPRAYING MACHINES FOR VINEYARDS***
***Patent / project number: National Patent Application No. A-00507 / 2022***
***Author/s: Marin Eugen, Manea Dragoș, Mateescu Marinela, Gheorghe Gabriel***
***Institution: National Institute for Research - Development of Machines and Installations designed for Agriculture and Food Industry***
***Category: G***
***Description:*** *The invention refers to a system for mounting and protecting the phytosanitary product recovery panel from vineyard spraying machines, intended in agriculture for carrying out phytosanitary treatments with spraying machines equipped with spray panels on both sides of the vine row.*
***State of development: Experimental Model***
***Contact: +40-21-269.32.55 / icsit@inma.ro***
***Presentation link: www.inma.ro***

**14.**

***Title: METHOD FOR MOBILIZING AND LOOSENING THE SOIL AND TECHNICAL EQUIPMENT FOR ITS APPLICATION***
***Patent / project number: National Patent Application No. A-00506 / 2022***
***Author/s: Marin Eugen, Manea Dragoș, Mateescu Marinela, Gheorghe Gabriel***
***Institution: National Institute for Research - Development of Machines and Installations designed for Agriculture and Food Industry***
***Category: G***
***Description:*** *The invention refers to a process for mobilizing and loosening the soil and to a technical equipment for its application, intended in agriculture for the mechanized execution of cultivation works between rows of plants, by which the soil is dislocated, mobilized, overturned, mixed and loosened on desired depth in one pass.*

*The technical equipment according to the invention consists of a frame (1), on which is mounted, with the help of a rotating support (2), an active working organ (3), which is placed on the direction of travel inclined at an angle (a) to the bottom of the furrow, being equipped with a cylindrical support shaft (a), a conical tip (b) arranged in the axial plane, a knife (c) with a continuous (smooth) edge arranged under a cutting angle (β) and angle of inclination (γ) with respect to the forward direction, one conical helical conveyor (d) with the constant pitch conical propeller generator, another conical helical conveyor (e) with the constant pitch conical propeller generator, the ends of which are in the same plane with the conical tip (b), a baffle (f) for directing the displaced soil layer and a clamping flange (g) with safety element, for transmitting the rotational movement (h) around its own axis from a hydraulic motor / electric (4), a suspension farm (5) on an agricultural tractor and a wheel (6) for support and adjustment of the working depth (i).*
***State of development: Experimental Model***
***Contact: +40-21-269.32.55 / icsit@inma.ro***
***Presentation link: www.inma.ro***

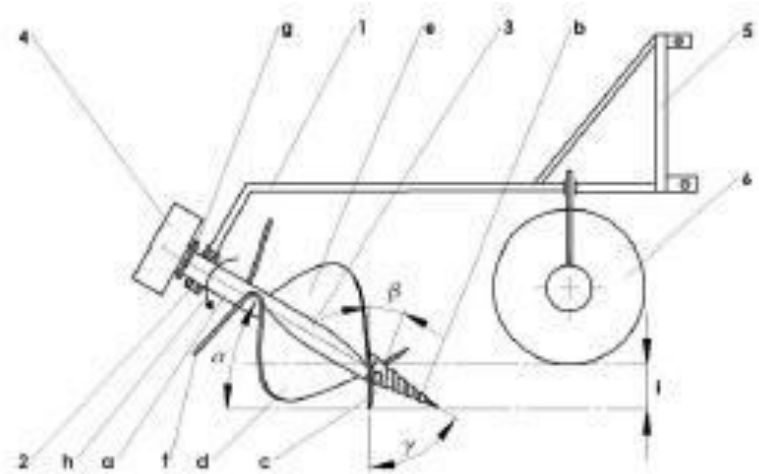


***Fig.1 - Kinematic scheme of the technical equipment***

**15.**

***Title:*** ***CUTTING APPARATUS FOR LARGE HEMP STEMS***
***Patent / project number:*** ***National Patent Application No. A-00270 / 2022***
***Author/s: Olan Mihai, Stroescu Gheorghe, Păun Anișoara, Vlăduț Valentin, Matache Mihai, Bunduchi George, Popa Diana-Lorena (SCDA Secuieni), Ivașcu Victoria-Larisa (UP Timișoara), Cioca Lucian-Ionel, (Univ. "Lucian Blaga"-Sibiu), Nicolescu Mihai (ASAS București)***
***Institution: National Institute for Research - Development of Machines and Installations designed for Agriculture and Food Industry***
***Category: G***
***Description:*** *The technical problem that the invention solves consists in the design of an efficient equipment that performs the cutting of hemp stalks - especially large sections with lignified part at the bottom of the stalks -using a system consisting of 2-5 chain saws with applied teeth and guide rail.*
***State of development: Experimental Model***
***Contact: +40-21-269.32.55 / icsit@inma.ro***
***Presentation link: www.inma.ro***

**16.**

***Title:*** ***AUTOMATED AND ENERGY INDEPENDENT VENTILATION SYSTEM FOR AQUATIC POOLS***
***Patent / project number: National Patent Application No. A-00237 / 2022***
***Author/s: Voicea Iulian, Vlăduț Valentin, Matache Mihai, Persu Cătălin, Cujbescu Dan, Găgeanu Iuliana***
***Institution: National Institute for Research - Development of Machines and Installations designed for Agriculture and Food Industry***
***Category: G***
***Description:*** *The invention refers to an automated aeration system by micro-diffusion of air in the water of concrete aquariums or natural ponds in the ground, in order to achieve the growth of edible fish in a controlled environment, with an appropriate aeration-oxygenation of the growing water, allowing a unitary growth of fish species that are raised in a polyculture system, using a wind-photovoltaic renewable hybrid source for power supply. The main disadvantage of the already existing solutions is that, although these installations essentially carry out the aeration-oxygenation operation of the pool water, they produce a wave-like current, which is often harmful for the activity of feeding the fish material in the pool and with harmful effects on the shore, especially at the natural earth slopes. Another disadvantage of the existing systems is the fact that these systems are quite high consumers of electricity and, not having the possibility of automated remote control, they have a continuous operation, even if the dissolved oxygen requirement of the water has reached a level sufficient for a proper growth of the fish stock.*
***State of development: Experimental Model***
***Contact: +40-21-269.32.55 / icsit@inma.ro***
***Presentation link: www.inma.ro***

*17.*

***Title:*** ***HEMP SEED CONDITIONING EQUIPMENT***
***Patent / project number: National Patent Application No. A-00236 / 2022***
***EPO Patent Application No. 22020413.5 / 2022***
***Author/s: Stroescu Gheorghe, Olan Mihai, Păun Anişoara, Vlăduţ Valentin, Matache Mihai, Popa Lucreţia***
***Institution: National Institute for Research - Development of Machines and Installations designed for Agriculture and Food Industry***
***Category: G***
***Description:*** *The invention relates to an equipment for conditioning hemp seeds used mainly on experimental plots belonging to specialized agricultural research stations. The technical problem solved by the invention consists in the design of an equipment that performs the threshing of the hemp inflorescences harvested at maturity and the separation of the impurities from the mass of beaten seeds. Conditioned seeds can be used as seed material or for extracting hemp oil. The Hemp Seed Conditioning Equipment eliminates the disadvantages of the known solutions as it consists of a movable support provided with wheels for movement and a processing module consisting of the housing in which some drums are mounted by means of front bearings.*

*Underneath these drumsticks are mounted countertops that are adjustable in distance from the drumsticks, with the help of axes and adjusting rods, which are positioned on supports. After adjusting the distances between the counterblenders and the blenders, the axles of the counterblenders are locked in the working position on some channels made in the equipment housing, with the help of nuts and washers. After this technological stage, the seeds are taken over by a vibrating sieve for sifting and a pneumatic separator composed of the separation chamber, an axial fan and a cyclone with an air filter bag and a bag for collecting waste in the form of fine powder resulting from the process of vibrating and sifting. The selected hemp seed will be collected in a tank mounted under the pneumatic separation chamber.*
***State of development: Experimental Model***
***Contact: +40-21-269.32.55 / icsit@inma.ro***
***Presentation link: www.inma.ro***

*18.*

***Title: FISH FEED PELLETIZER WITH INTEGRATED SPRAYING KIT FOR ADDED INGREDIENTS***
***Patent / project number: National Patent Application No. A-00664 / 2021***
***Author/s: Voicea Iulian, Vlăduţ Valentin, Milian Gabriela, Persu Cătălin, Cujbescu Dan, Găgeanu Iuliana***
***Institution: National Institute for Research - Development of Machines and Installations designed for Agriculture and Food Industry***
***Category: G***
***Description:*** *The invention refers to a fish feed pelletizer with an integrated additive kit, spraying liquid additives in order to increase the nutritional quality of the food produced (pellets - fish feed) as well as to increase their durability / completeness over time. Currently, the equipment for pelletizing / granulating*

*fish material has the ability to make pellets / granules for feeding fish with optimal nutritional properties, but the recipe mixture is additionally made by integrating into the technology to obtain homogenization systems independent of compaction /pelletizing operation. The main disadvantage of the already existing solutions consists in the fact that these installations carry out the sequential control of the homogenization and correct additive process of the fish feed mixture recipes, and some part of the additive material until the extrusion / pelletization process loses part of its nutritional or conservation value of the finished product made, the phenomenon of evaporation over time or even catalytic oxidation due to the time until the pelletizing operation takes place.*

*Another disadvantage is the fact that the integration into the manufacturing technology of specialized equipment for the homogenization of powdery and liquid materials leads to a high energy cost and implicitly to a significantly higher final cost of the finished product. The technical problem that the proposed solution solves, according to the invention, consists in making an integrated kit for the direct addition by spraying of the raw materials that enter the manufacturing process of feed pellets for feeding fish. Thus, a system of distribution-spraying of raw materials and liquid additives adjacent to a classic fish feed pelletizer was created.*

***State of development: Experimental Model***
***Contact: +40-21-269.32.55 / icsit@inma.ro***
***Presentation link: www.inma.ro***

**19.**

***Title: METHOD OF TREATMENT OF AURICULAR MANGE AT RABBITS***
***Patent/project number: s 2021 0087 from 2021.10.08***
***Author/s: MOSCALIC Roman, CARAMAN Mariana, MAŞNER Oleg, PETCU Igor, LUPAŞCU Tudor, EFTENIUC Iulia, COJUŞNEANU Oleg***
***Institution: Scientific and Practical Institute of Biotechnologies in Zootechny and Veterinary Medicine***
***Category: G***
***Description:*** *The invention provides for the spraying on the surface of the auricular pinna or in the auditory canal affected by mites of the rabbit of a preparation, obtained by mixing 5 g of water-soluble enotannins, obtained by oxidizing enotannins with hydrogen peroxide, 40 ml of glycerin and 60 ml of water.*

*The result of the invention consists in ensuring an acaricidal, bactericidal, regenerative action of the preparation used and reducing the duration of the treatment. Way of ussage: To obtain the curative effect, only one administration of LEC 5.0% liniment with 1-3 sprays is sufficient, depending on the degree of affection of the auricle and the auditory canal.*

*Advantages of LEC 5.0% liniment:*
◄*ecological*
◄*efficient*
◄*cheap*
◄*has no side effects*
◄*no waiting time for meat*

***State of development: rabbit farm SRL "Sof Fest"***
***Contact: (+373) 22359350 izmv56@mail.ru***

**20.**

***Title: DEVICE FOR ARTIFICIAL INSEMINATION OF SHEEP AND GOAT***
***Patent/project number: MD 4715 C1 din 2021.05.31***
***Author/s: DARIE Grigore, Vacevschii Serghei, BRADU Nina, DJENJERA Irina, OSIPCIUC Galina, MAŞNER Oleg.***
***Institution: Scientific and Practical Institute of Biotechnologies in Zootechny and Veterinary Medicine***
***Category: G***
***Description:*** *The device, according to the invention, comprise a body of a length of 230…235 mm, made of stainless steel, assembled from a cannula for fixing the syringe with seminal material, a rod and a spiral tip, the outer diameter $d_1$ of which is 1.6 mm, connected by means of a sleeve with an outer diameter $d_2$ of 1.8 mm, at the same time, a lateral hole is made at the end of the spiral tip, the angle of inclination of the spiral tip is 24 ... 40˚, its length is 30 ... 32 mm, and the number of turns of the curved part of the tip is 1.5…1.7. Way of usage. The syringe with seeding material is attached to the cannula 2.*

*The genital tract of the sheep or goat is opened by vaginal mucus. The free end of the device is inserted into the cervical canal by gentle clockwise rotation movements and in the opposite direction of the slight movement, thus allowing penetration into it at a depth of 2.5...3 cm, after which, by pressing the piston of the syringe, the material to be seeded is deposited.*

*Advantages:*
*√ the spiral-shaped tip allows atraumatic penetration of the cervical canal to the required depth;*
*√ the device is made of stainless steel, resistant to mechanical, thermal and chemical influences during seeding, cleaning, sterilization and transportation.*
***State of development: goat farm STE "Maximovca"***
***Contact: (+373) 22359350*** *izmv56@mail.ru*

**21.**

***Title: COMPOUND FEED FOR BROILERS***
***Patent number: decision 4.2/87 din 30.06.2022***
***Authors: UNTEA Arabela Elena, PANAITE Tatiana Dumitra, PANAITE Cristinel, OLTEANU Margareta***
***Institution: National Research - Development Institute for Animal Biology and Nutrition, IBNA Balotesti***
***Category: G***
***Description:*** *The invention refers to a combined feed supplemented with prebiotics, probiotics and organic acids for broiler chicks raised in an intensive system.*

*By using the combined feed presented in broilers diets, a delayed effect is obtained in the oxidation of lipids from the muscular structure, leading to foods of animal origin (chicken meat) with increased nutritional quality.*

*The technical problem that the invention solves consists in removing the disadvantages brought by the use of synthetic antioxidants in the mineral premixes of the combined feeds for broiler chickens, by using natural supplements, capable of stimulating the endogenous antioxidant mechanisms of the animals.*

***State of development: research project; product (compound feed); scientific paper.***
***Contact:*** *arabela.untea@ibna.ro*
***Presentation link:*** *https://www.ibna.ro/en/*

***22.***

***Title: COMPOUND FEED FOR CHICKENS (28-42 DAYS) WHOSE STRUCTURE CONTAINS COMPOUNDS WITH ANTIOXIDANT POTENTIAL***
***Patent number: A/00348/ 20.07.2022***
***Authors: SARACILA Mihaela, UNTEA Arabela Elena, PANAITE Tatiana Dumitra, VARZARU Iulia, TURCU Raluca Paula, VLAICU Petru Alexandru, OANCEA Alexandra, ROPOTA Mariana***
***Institution: National Research - Development Institute for Animal Biology and Nutrition, IBNA Balotesti***
***Category: G***
***Description:*** *The invention refers to a innovative compound feed (28-42 days) for broilers containing the addition of 2% sea buckthorn leaves and 0.00002% Chromium. The compound feed provides consumer health benefits by increasing the concentrations of long-chain polyunsaturated fatty acids (DHA), lutein and zeaxanthin in chicken meat under conditions of increased oxidative stability. Enriching the nutritional quality of chicken meat is an intensely debated field of research, especially in the current conditions where some foods are seen as food medicine. More and more, there is a trend to replace food supplements purchased from pharmacies with natural sources that are a regular part of the human diet in order to provide him with the daily requirement of nutrients.*

*Fatty acids mainly long-chain polyunsaturated fatty acids (LC-PUFA), carotenoids, polyphenols, minerals and vitamins are the most studied nutrients suitable for meat enrichment. But the enrichment of meat with nutrients such as fatty acids can also bring some disadvantages, such as the acceleration of lipid oxidation, which negatively affects their quality and shelf life. Considering the above, a new feed compound is necessary to be able to obtain chicken meat with improved nutritional properties.*
***State of development: research project; product (compound feed); scientific paper.***
***Contact:*** *mihaela.saracila@ibna.ro*
***Presentation link:*** *https://www.ibna.ro/en/*

***23.***

***Title: COMPOUND FEED FOR BROILERS, ENRICHED IN PUFA AND NATURAL ANTIOXIDANTS***
***Patent number: A/00789 din 27.11.2020***
***Authors: UNTEA Arabela Elena, PANAITE Tatiana Dumitra, VARZARU Iulia, TURCU Raluca Paula, SARACILA Mihaela, OANCEA Alexandra***
***Institution: National Research - Development Institute for Animal Biology and Nutrition, IBNA Balotesti***
***Category: G***

***Description:*** *The invention refers to a new feed recipe for broilers, enriched in polyunsaturated fatty acids and antioxidant compounds by including two phytoadditives: walnut meal and cranberry leaves. The feed composition offers the possibility of obtaining food products rich in omega 3 (chicken meat) and with an extended shelf life. The technical problem that the claimed invention solves consists in the use of a new feed composition for broilers (28-42 days) with the aim of improving the nutritional quality of chicken meat (increasing the concentration of polyunsaturated fatty acids) under conditions of oxidative stability raised.*
***State of development: research project; product (compound feed); scientific paper.***
***Contact:*** *arabela.untea@ibna.ro*
***Presentation link:*** *https://www.ibna.ro/en/*

**24.**

***Title: COMPOUND FEED FOR THE GROWTH PHASE OF CHICKENS RAISED IN HIGH HEAT STRESS***
***Patent number: decision 4.2/ 89 din 30.06.2022***
***Authors: CRISTE Rodica Diana, PANAITE Tatiana Dumitra, TABUC Cristina, VLAICU Petru Alexandru, SARACILA Mihaela, OLTEANU Margareta, TURCU Raluca Paula, PAPUC Puia Camelia***
***Institution: National Research - Development Institute for Animal Biology and Nutrition, IBNA Balotesti***
***Category: G***
***Description:*** *The invention refers to a feed compound for the growth phase of broilers raised in high heat stress that contains 1% powder and 0.005% Artemisia annua oil. The feed compound represents a nutritional solution for mitigating the adverse effects of high heat stress on performance and on the balance of the intestinal microflora. Maintaining the balance of the intestinal microflora is an essential condition for meat production and the use of conventional feed compounds is the second disadvantage caused by the ban on the use of antibiotics as growth promoters in poultry feed (January 1, 2006, EC regulation No 1831/20031).*

*In this context, feeding broilers with new compound feed that respond to the limitations imposed by certain specific growth situations, is the natural way with a direct effect in reducing economic losses by maintaining the health of the digestive tract and research on this topic has become a priority in the field zootechnical research.*
***State of development: research project; product (compounds feed); scientific paper.***
***Contact:*** *mihaela.saracila@ibna.ro*
***Presentation link:*** *https://www.ibna.ro/en/*

**25.**

***Title: FISH MAGNET EYE: A TOOL FOR COLLECTING AND DETECTING FISH TO INCREASE FISHERMEN CATCHES***
***Patent/project number: 336/UN4.22.13/PT.03.01/2021***
***Author/s: Ahmad Satari Idris; Muh. Ikhwan Resya***
***Institution: Universitas Hasanuddin, Indonesia***

***Category: G***
***Description:*** *Fisheries business using rumpon aids in its development does not experience much development when compared to other fishing aids. Sensors in the world of fisheries can be used to sense an object or detect the presence or absence of fish under the water surface. The sensor will start detecting phototaxis fish coming to light, so this fish collection and detection tool combines assistive technology, namely LED (Light Emitting Diode) and Solar Panels.*

*Fish Magnet Eye is a fishing tool that combines FADs, light fishing and fish finder tools to facilitate fishermen in fishing activities and increase fisherman catches, help fishermen detect the presence of fish and shorten the time of fishing activities carried out by fishermen. This tool is equipped with a meter raft which will be a place for attaching the battery, raffia rope, fish finder and LED dip light. Fish Magnet Eye Tool can be used for fishing done during the day and the night.*
***State of development: Product***
***Contact: 0817-7091-4129***
***Presentation link:*** *https://youtu.be/RJMZGhj53XA*

**26.**

***Title: ROMANIAN POTATO VARIETY: EVOLLETE***
***Patent / project number: No. 9450 / 10.11.2022***
***Author/s: Anca – Mihaela BACIU, Luiza MIKE***
***Institution: RESEARCH AND DEVELOPMENT STATION FOR POTATO TARGU SECUIESC***
***Category: G***
***Description:*** *Potato variety obtained by sexual hybridization between Colette x Laura, followed by individual clonal selection in the hybrid population. It is maintained by vegetative propagation, which gives it stability and homogeneity.*

*The plant is of medium height, intermediate foliage structure and erect habit. The inflorescence is of medium size. The flowers have a medium-sized, light purple corolla. The tubercle is short-ovate with shallow eyes. The color of the skin is light red and the color of the flesh medium yellow. The variety belongs to the semi-early variety group and is classified in use class C. The Evollete variety has a high production capacity, with an average yield of 53.8 t/ha. The variety is highly resistant to leaf spot, leaf curl virus and resistant to virus Y.*
***State of development: Product***
***Contact: Anca Baciu / +40751045873***
***Presentation link:*** *www.scdctargusecuiesc.ro*

**27.**

***Title: ROMANIAN POTATO VARIETY: NEIL***
***Patent / project number: No. 9452 / 10.11.2022***
***Author/s: Anca – Mihaela BACIU, Luiza MIKE***
***Institution: RESEARCH AND DEVELOPMENT STATION FOR POTATO TARGU SECUIESC***

***Category: G***
***Description:*** *Potato variety obtained by sexual hybridization between Astral x Bellarosa, followed by individual clonal selection in the hybrid population. It is maintained by vegetative propagation, which gives it stability and homogeneity.*

*The plant is of medium height, intermediate type and semi-erect habit. The inflorescence is of medium size. The flowers have a medium-sized white corolla. The tubers are round with shallow eyes. The color of the skin is red and the color of the flesh light yellow. The variety belongs to the semi-early variety group and is classified in use class B. The NEIL variety has a high production capacity, with an average yield of 42.3 t/ha. The variety is highly resistant to leaf spot attack, resistant to leaf curl virus and virus Y.*
***State of development: Product***
***Contact: Anca Baciu / +40751045873***
***Presentation link:*** *www.scdctargusecuiesc.ro*

***28.***

***Title: ROMANIAN POTATO VARIETY: NEVIN***
***Patent / project number: No. 9451 / 10.11.2022***
***Author/s: Anca – Mihaela BACIU, Luiza MIKE***
***Institution: RESEARCH AND DEVELOPMENT STATION FOR POTATO TARGU SECUIESC***
***Category: G***
***Description:*** *Potato variety obtained by sexual hybridization between Bellarosa x Laura, followed by individual clonal selection in the hybrid population. It is maintained by vegetative propagation, which gives it stability and homogeneity.*

*The plant is of very tall height, leaf-like foliage structure and prostrate (spreading) habit. The inflorescence is of medium size. The flowers have a medium-sized, light purple corolla. The tuber is oval - elongated, with shallow eyes. The color of the skin is red and the color of the flesh cream. The variety belongs to the semi-early variety group and is classified in use class B. The NEVIN variety has a high production capacity, with an average yield of 48,5 t/ha. The variety is highly resistant to leaf spot, leaf curl virus and resistant to virus Y.*
***State of development: Product***
***Contact: Anca Baciu / +40751045873***
***Presentation link:*** *www.scdctargusecuiesc.ro*

***29.***

***Title: PROCESS FOR OBTAINING BIOORGANOMINERAL FERTILIZERS***
***Patent/project number: Patent application no. a 2022 0036/2022.07.18***
***Author/s: Gheorghe JIGĂU, Nicolai SPRÎNCEAN, Eugeniu SPRÎNCEAN, Sergiu DOBROJAN, Marin SPRÎNCEAN, Boris TURCHIN***
***Institution: Moldova State University and SRL SCHIT-AGROMEX***
***Category: G***

***Description:*** *The procedure consists in the prior preparation of the nutrient substrate (composed of the combination of fresh manure, straw, soil (humifer layer), waste from the thermoelectric industry, biomass, waste from the bakery industry, green biomass and bioorganomineral addition) inoculated after which the following operations follow: a) fermentation-composting of the bioorganomineral substrate - which is produced cold over a period of 3- 6 months and stirring every 3-4 days; b) humification - which takes place under anaerobic conditions controlled by periodic oxygenation of the liquid component; c) maturing - carried out after settlement-extraction of the liquid fraction and transport in a storage container where it is maintained in a layer with a thickness of 50-60 cm. Thus, conditions are created for the alternation of drying-wetting processes and the creation of alternating hydrothermal and aerohydric regimes in accordance with the cyclicity of climatic conditions; d) periodic treatment with effective preparations - the bioorganomineral substrate is periodically treated with preparations of nitrogen-fixing cyanophyte algae of the genus Nostoc, preparations of effective microorganisms and humic bioorganominerals obtained within the present process; e) administration of fertilizers - bioorganomineral fertilizers are applied in a dose of 3 t/ha.*

*When applying the fertilizer, the improvement of the physical and chemical properties of the soil (in particular the increase of the humus level), the increase of the productivity of the agricultural crops and the improvement of the quality of the finished production are attested.*

***State of development: Large scale production.***

***Contact: tel.: (+373) 69543964***

***Presentation link:*** *https://usm.md/?lang=en*

***30.***

***Title: DESIGN MANAGEMENT OF AN ECOLOGICAL FARM***

***Project number: student project***

***Author/s: ALB IUSTINA LUCRETIA CRISTINA***

***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara***

***Category: G***

***Description:*** *The design of the organic farm requires from the farmer:*

- *knowledge regarding ecological agriculture;*
- *a strong motivation for a way of production in harmony with the laws of nature, which protects the environment, the health of the agro-ecosystem and the consumers of agricultural products;*
- *the conviction that what he is doing is good, both on the part of the farmer and his family;*
- *an agricultural holding that lends itself to ecological agriculture, and includes several crops and preferably also a zootechnical sector;*
- *a very good organization and planning of agricultural activities.*

*The farmer who wants to practice organic farming must design his own farm according to the requirements and rules of organic agriculture. The organization of the farm should be based on an analysis of strengths, weaknesses, opportunities and threats. Before starting the process of ecological transformation of traditional farms, it is necessary to take samples of soil (from the arable layer) and water from the household, to determine if these two vital sources are not polluted. Since the process of organizing and forming an ecological farm takes at least 3-4 years, at least a rotation of employment is necessary, and the "business" must start with establishing the profile of the farm.*

***State of development: organic farm***
***Contact: alb.cristina2000@gmail.com***
***Presentation link: https://www.facebook.com/cristina.alb.33***

***31.***

***Title: AUGMENTED REALITY ON MOBILE GAME-BASED LEARNING APPLICATIONS FOR VETERINARY STUDENTS CANINE HEAD ANATOMY***
***Patent number: student project***
***Authors: Pawana Chuesiri, Phakdee Sutthanom, Jantima Intarapunya, Gridtayoch Chuesiri***
***Institution: Chulalongkorn University and Chulalongkorn University Demonstration Secondary School, Thailand***
***Category: G***
***Description:*** *An application of Augmented Reality on Mobile Game-Based Learning Applications for Veterinary Students: Canine Head Anatomy, It is an active learning tool for teaching veterinary anatomy in three dimensions by creating a virtual world with a real canine head with important anatomical structures, similar to make learners interact through teaching media coupled with the effective use of three-dimensional media programs to better understand the content within the lesson, enhancing the imagination to see the virtual images of the internal structures of various organ. It was used with a canine head anatomy model to review the lesson content by themself from anywhere as needed.*

*Starting from downloading the application via a mobile device, register with your first name, surname, student ID, read the rules for playing the game. Scanning the image of the canine's head, which is an AR marker, then a 3D image of the canine's head will appear. Choose questions according to the categories in the game that interest you, consisting of skin, bones, muscles, etc.*

*Choose the correct answer within a limited time. The game has several levels from easy to hard. It has accumulated points with scores visible when playing is over, can record total score and will receive a certificate certifying that the student has successfully completed the game, and can play the game repeatedly when needed.*
***State of development: prototype***
***Contact: pawana.u@chula.ac.th***
***Presentation link: https://www.globe.gov/web/chulalongkorn-university-demonstration-secondary-school/home***

***32.***

***Title: ONE-HEALTH APPROACH OF ANIMAL DISEASES WITH HIGH RISK OF SPREADING FROM AREAS UNDER MILITARY CONFLICTS***
***Patent/project number: concept***
***Author/s: Ciprian-Florin Furnaris, Gabriel Predoi, Stelian Bărăităreanu***
***Institution: University of Agronomic Sciences and Veterinary Medicine of Bucharest***
***Category: G***

***Description:*** *Diseases spreading patterns, wildlife migrations charts, and latest reports of contaminated animal populations will enable a better transboundary monitoring of animal diseases, including zoonoses for which the control fails due to military conflicts.*

*Nowadays, Europe is facing a significant military conflict that has led to a large number of forced displacements and to the driving of wildlife to the quieter surrounding areas.*

*Along with the refugees, many companion animals were relocated in the neighbouring countries and wild animals were forced out.*

*Identification of the inputs belonging to different areas of influence, with major effects on the diseases' spreading is possible by reviewing published studies for evidence of high risk of transboundary animal diseases' spreading from areas under military conflicts (with worse Global Peace Index - GPI scores) to those with better GPI scores.*

***State of development: concept***

***Contact:*** *ffurnaris@gmail.com gabrielpredoi@yahoo.com stelian.baraitareanu@gmail.com*

***Presentation link:*** *https://www.usamv.ro/index.php/en/home-eng*

***33.***

***Title: BIOTECHNOLOGICAL SOLUTION FOR PLANT WATER AND BIOSTIMULANTS SUSTAINABLE DELIVERY SYSTEM (HYDROBIOGEL)***

***Patent/project number: 663PED/2022***

***Author/s: Amalia-Carmen Miteluț, Elena Mănăilă, Silvana Dănăilă-Guidea, Mihaela Drăghici, Paul Alexandru Popescu, Elisabeta-Elena Popa, Gabriela Crăciun, Mihaela Geicu-Cristea, Călina Petruța Cornea, Mona-Elena Popa***

***Institution: University of Agronomic Sciences and Veterinary Medicine of Bucharest***

***Category: G***

***Description:*** *The project has as objectives the obtaining by electron beam processing and testing at laboratory level and protected spaces (greenhouse), of a new superabsorbent and biodegradable polymeric product (BSP), proposed to be used in plant culture, as a sustainable system for efficient delivery of water and biostimulators in soil-plants system.*

*The BSP will be tested on three species of vegetable plants at the laboratory level (seedlings in pots) and in protected spaces in order to demonstrate the ability of retention and controlled release of the water and biostimulators under different environmental conditions and for different requirements (plant species, type soil, soil moisture, outdoor humidity, temperature), in order to establish a sustainable delivery technology regarding inputs to agriculture.*

***State of development: Research project***

***Contact: Miteluț Amalia-Carmen,*** *amaliamitelut@yahoo.com*

***Presentation link:*** *https://www.usamv.ro/index.php/en/home-eng*

**34.**

***Title: NOVEL PROCEDURE FOR MAKING WIRE CLAMPS USED IN THE CONSTRUCTION OF MOBILE GREENHOUSE FRAME WITH WIND AND STORM RESISTANCE***

***Patent/project: in process of patent registration***

***Author/s: (a) Nguyen Hoang Lam, (b) Nguyen Le Bao Duy, (c) Trieu Thanh Ha, (d) Nguyen Minh Duc, (e) Nguyen Huy Hoang***

***Institution: (a) Luong The Vinh Secondary School, (b) Be Van Dan Secondary School, (c) Doan Thi Diem High School, (d) Quang Trung High School, (e) Chu Van An High School, Vietnam***

***Category: G***

***Description:*** *The invention describes a procedure for manufacturing wire clamps used for connection in building a greenhouse frame that is windproof and movable. A greenhouse is a structural combination consisting of a truss frame and nylon film. Its clamps are essential to protect plants against weather and other external conditions and create an excellent environment for plants to grow and develop for good productivity. A steel wire clamp is an accessory that helps connect parts to form a frame. The clamp design has the shape of semi-circular curves, so it does not tear the nylon film and the net surrounding the greenhouse. Suitable materials and tempering methods help the clamps have hardness, durability, and elasticity, so it creates a spur to help the steel bars not be broken or pushed together when facing storms but also helps to remove, install and relocate quickly. Appropriate materials and tempering methods help increase hardness, durability, and resilience, thus providing flexibility to prevent steel bars from being broken or pushed in case of storms. Still, it also helps disassemble and remove the whole frame quickly.*

***State of development: prototype***

***Contact:*** *info@tisias.org*

***Presentation link:*** *https://www.tisias.org/*

# H - Foods, Drinks, Restaurants, Hotels & Spa

**1.**

***Title: VBUNG® Technology***
***Patent/project number: AU 2018203047 / EP 3564354A1***
***Author/s: Vitalie POPA & Team***
***Institution: Vbung & Vdoor***
***Category: H***
***Description:*** *VBUNG is a sustainable stainless steel bung that seals the custom wooden barrel while maintaining control over oxidation, contamination and evaporation during aerobic and /or anaerobic maceration, fermentation, malolactic fermentation and aging under continuous safe positive and /or negative pressure inside the custom wooden barrel.*

*VBUNG ® Technology : No Added Additives and Preservatives Aerobic and/or Anaerobic Maceration, Fermentation, Malolactic Fermentation and Aging under Continuous Positive and/or Negative Pressure with Sunlight in Custom Wooden Barrel*

*Advantages:*

1. *Sustainable Technology and Equipment without the use of Additives and Preservatives*
2. *Sustainable Mobile Winery in the vineyard with solar panels, sensors, and mobile data*
3. *Accelerated Winemaking and Aging technological process*
4. *Equipment Control over Oxidation, Contamination, and Evaporation*
5. *New or Old Wooden barrels can be used once custom modifications are done*
6. *Whole bunch, Juice, or Berries can be used*
7. *No Juice clarification is needed (No flotation, cold settling, or centrifugation)*
8. *No temperature or humidity control is required (Fermentation at high temperatures for white winemaking is not a problem)*
9. *Direct Sunlight for the whole technological process*
10. *No need for topping the barrels*
11. *Taking out wine samples for laboratory or tasting without oxidation, contamination, evaporation*
12. *Barrel regeneration with compressed O2 or Air before vintage*
13. *Extended lifetime for wooden barrels due to custom construction*
14. *Can be applied to making and aging Wine, Beer, Cider, Vinegar, and aging Spirits.*
15. *Reduced labor, time, and cost.*

***State of development: Product***
***Contact:*** *vitalie.popa@vbungvdoor.com* *https://www.vbungvdoor.com/*
***Presentation link:*** *https://youtu.be/plhgINNTYW0*

**2.**

***Title: COMPOUND FEED FOR BROILERS CONTAINING SAGE AS A NATURAL FEED ADDITIVE***
***Patent number: A 00726/ 03/12/2021***
***Authors: VLAICU Petru Alexandru, UNTEA Arabela Elena, PANAITE Tatiana Dumitra, OLTEANU Margareta, TURCU Raluca Paula, SARACILA Mihaela, CORNESCU Gabriela Maria***
***Institution: National Research - Development Institute for Animal Biology and Nutrition, IBNA Balotesti***
***Category: H***
***Description:*** *The invention refers to a new compound feed for broilers, in the growth and finishing phases, which contains sage as a natural feed additive. Due to the numerous bioactive substances present in sage, which act as growth promoters in chicken and which can improve the nutritional and sensorial qualities of the meat, makes this invention an alternative to antibiotics. In addition, sage is rich in numerous substances with antioxidant potential, which protect the lipids in the meat against oxidation, increase the antioxidant capacity and lead to a decrease of cholesterol content in the meat, which represents a very important aspect for chicken meat consumers.*
***State of development: research project; product (compounds feed); scientific paper.***
***Contact:*** *alexandru.vlaicu@outlook.com*
***Presentation link:*** *https://www.ibna.ro/en/*

**3.**

***Title: FALVURA : Inovation of Edible Film From Sea Lettuce (Ulva lactura) and Tofu Waste***
***Patent/project number: EC00202272363***
***Author/s: I Made Ananta Abie Diarta; I Putu Thio Mahapradana; Liedya Tara Divya; I Made Bagus Wisnu Kertha; Putu Lucia Amanda Mahadewi***
***Institution: SMAN 3 DENPASAR, INDONESIA***
***Category: H***
***Description:*** *Edible food packaging that is available on market poses health problems caused by gluten and low nutritional content. In this research, we make an innovation called Falvura. Falvura was innovated using sea lettuce (Ulva lactuca) and tofu waste extract.*

*This research objectives are: (1) Investigate the Physical characteristics of "Falvura" were reviewed in terms of density test, water absorption, water vapor transmission rate test, and biodegradation test, (2) Investigate the results of the "Falvura" organoleptic test from the combination of tofu waste and Ulva lactuca, (3) Investigating the results of the "Falvura" proximate analysis of the combination of tofu waste and Ulva lactuca (4) Investigating the antioxidant test result of "Falvura" from the combination of tofu waste and Ulva lactuca. The research method used by researchers is an experiment, quantitative-qualitative descriptive, and literature study.*

*The average density of T1 to T3 tends to decrease with successive values of 1.348; 0,935; and 0,769 g/cm³. The average from the water absorption test of T1-T3 are 12,02%; 7,83%; and 7,14%. From the solubility test results, it is proven that the edible film can dissolve in water within 24 hours. From the*

*parameters of the water vapor transmission rate, the edible film produced produces a value of 0.03-0.1 g/day/m2. And the edible film will decompose within 5.80-11.02 days, those are has been fulfil the standard. Based on the organoleptic test result, T1 has the highest value in color and texture parameters, T2 has the highest value in taste parameters, and T1 and T3 have the same value in scent parameters. The proximate analysis shows that Falvura positively contains water, ash, protein, fat, carbohydrate, and calories. With range of value in arrow are 1,15-1,37%bb; 0,36-0,68% bb; 14,24-18.23% bb; 1,46-1,91% bb; 78,11-82,54 %bb; and 400.26-402.61 kkal.*

*A combination of tofu waste extract and sea lettuce extract can be produced as an edible film. Based on the antioxidant capacity test result, each T1-T3 in a row has 70.49 mg GAEAC/L; 78,37 mg GAEAC/L; and 83,90 mg GAEAC/L. There was an increase from T1 until T3 and can be seen that the antioxidant value was influenced by the composition of sea lettuce.*

***State of development: Product***
***Contact: 0817-7091-4129***
***Presentation link:*** *https://iysa.or.id/about/*

**4.**

***Title: PROCESS REGENERATION OF ACTIVATED CARBON***
***Patent/project number: Patent application no. MD a 2022 0035/2022.07.18***
***Author/s: Vasile GUTSANU, Maria BOTNARU, Oleg PETUHOV, Gabriela LISA***
***Institution: Moldova State University***
***Category: H***
***Description:*** *In the work, the regeneration conditions of commercial activated carbon of the Granucol type, which is widely used in the food industry, are determined. The conditions for the regeneration of coal used as a vitamin C sorbent are as follows: heating temperature in air - 350 oC and heating time - 40 minutes. The specific adsorption capacity of regenerated carbon for vitamin C is about 88 %.*
***(This research was supported by the research project: No 20.80009.7007.21)***
***State of development: At the laboratory level.***
***Contact: Tel.: +373 79457015, E-mail:*** *gutsanu@gmail.com*
***Presentation link:*** *https://usm.md/?lang=en*

**5.**

***Title: NUTRITIONALLY ENRICHED GINGERBREAD AND PROCEDURE FOR OBTAINING IT***
***Patent/project number: Patent application A/00447/26.07.2022***
***Author/s: Adriana Dabija, Ancuța Chetrariu***
***Institution: Ștefan cel Mare University of Suceava***
***Category: H***
***Description:*** *The invention relates to the category of flour products, being known in a wide variety of assortments obtained from hard doughs mixed with chemical loosening agents, syrups, fats and other improvers of food taste and value, with porous structure.*

*Gingerbread falls into the category of flour products, being known in a wide variety of assortments obtained from hard doughs mixed with chemical loosening agents, syrups, fats and other improvers of food taste and value, with porous structure.*

*The technical problem that the invention solves consists in obtaining a product with sensory characteristics and improved nutritional value, with a high content of proteins and fiber, being produced from wheat flour, millet flour, spent grain flour and dandelion syrup, being intended for people who want to have a healthy diet.*

*The finished product has a number of advantages: obtaining an assortment of gingerbread with the role of functional food due to the ingredients in the manufacturing recipe, obtaining an assortment of gingerbread with low glycemic index and high protein and dietary fiber content, easily assimilated by the body.*

***State of development: product***
***Contact:*** *adriana.dabija@fia.usv.ro*
***Presentation link:*** *https://usv.ro/en/homepage-2021/*

***6.***

***Title: FUNCTIONAL YOGURT WITH LOW GLYCEMIC INDEX AND PROCESS FOR OBTAINIG IT***
***Patent/project number: Patent RO 134358/28.01.2022***
***Authors: Adriana Dabija, Mihai Covaşă, Andrei Lobiuc, Camelia Oana Iaţcu, Sebastian-Andrei Avătămăniţei***
***Institution: Ştefan cel Mare University of Suceava***
***Category: H***
***Description:*** *The invention relates to a food product of the fermented milk product type, with the role of functional food, due to its multiple health benefits. Yogurt, according to the invention, is a stirred fermented milk product, with low fat content and low glycemic index, in the composition of which only natural ingredients are included.*

*The invention refers to a food product of the fermented milk product type, with the role of functional food, due to its multiple health benefits. Yogurt, according to the invention, is a stirred fermented milk product, with low fat content and low glycemic index, in the composition of which only natural ingredients are included.*

*Obtaining yogurt with 1.1% fat, according to the invention, involves: normalizing milk to a content of 1.1% fat, fortification by adding hemp proteins up to a content of 5.5% proteins, addition of 1% fiber oats, homogenization, pasteurization, inoculation with lactic acid bacteria cultures, thermostating until the pH of the milk reaches the value of 4.5, addition of microcapsules with probiotic bacteria, distribution in retail packaging and cooling in two stages for ripening.*

*Bacterial species of the genus Bifidobacterium help lower blood sugar levels, reduce insulin resistance and have anti-inflammatory properties. The yogurt – finished product can be used in the prevention and control of type 2 diabetes and associated inflammatory conditions such as obesity.*

***State of development: product***
***Contact:*** *adriana.dabija@fia.usv.ro*
***Presentation link:*** *https://usv.ro/en/homepage-2021/*

*7.*

***Title: PLANT FOR DRYING GRANULATED PRODUCTS IN A SUSPENDED LAYER***
***Patent/project number: MD 1558 Y***
***Author/s: BERNIC Mircea, MD; ȚISLINSCAIA Natalia, MD; BALAN Mihail, MD; VIŞANU Vitali, MD; ȚURCANU Dinu, MD; MELENCIUC Mihail, MD; SANDU Andrei-Victor, RO;***
***Institution: Technical University of Moldova***
***Category: H***
***Description:*** *The invention relates to drying techniques, in particular to drying plants of granular products in suspended layer, and can be used in food industry enterprises, in laboratories and research centers.*

*The plant, according to the invention, comprises a body (1) and a pipe (6). On the body (1) is rigidly mounted a control panel (3) for actuating an inverter (2), a fan (4) for air suction by means of a filter (11), and a microwave generator (15) with a drying chamber (14), mounted on a support (8). On the fan (4) is mounted the pipe (6), to the upper part of which are attached a feed hopper (5) for loading the product, an outlet manifold (9) and a perforated receiver (10).*
***State of development: Implemented at the enterprise "S.C. AZAMET-GRUP S.R.L."***
***Contact: +37369608610 Email:*** *mihail.balan@pmai.utm.md*
***Presentation link:*** *https://youtu.be/EOeMDyktees*

*8.*

***Title: COMPOSITIONS AND METHOD FOR PRODUCING COZONAC WITH SPONTANEOUS FLORA SOURDOUGH***
***Patent number: MD 1563***
***Authors: PhD, associate professor: Rodica SIMINIUC, PhD student: Dinu ȚURCANU***
***Institution: Technical University of Moldova***
***Category: H***
***Purpose:*** *Development of pastry and bakery products based on spontaneous flora sourdough - field of research in accordance with the requirements of the European Union - in order to directly improve the nutritional benefits of cereals, reduce allergens, toxic compounds and increase food safety of products.*

*Solution: Elaborating spontaneous flora sourdough powder from wheat flour or sorghum flour (Sorghum Oryzoidum), with a stable texture of the finished product, higher nutritional and sensory characteristics (especially for cozonac obtained from sorghum flour), but also expanding the range of pastries with spontaneous flora sourdough from different flours, as well as developing products for people with disorders related to gluten consumption.*
*Advantages of the composition:*
- *The use of spontaneous flora sourdough powder from wheat flour or sorghum flour, does not involve refrigeration equipment for its storage;*
- *Easy dosing of spontaneous flora sourdough powder;*
- *The possibility to use the spontaneous flora sourdough from soriz flour in the elaboration of gluten-free products;*

- *Improving the taste and aroma of the finished product by using spontaneous flora sourdough from soriz flour;*
- *Reduced amount of sugar compared to the nearest solution;*
- *Without the use of preservatives.*

*Advantages of the process:*

- *Good rheological properties of the dough due to long fermentation and, respectively, the ability to bind water, swelling of starch and solubility of pentosans.*
- *Stable texture properties, with a well-preserved shape even after cooling the cozonac, which do not require suspension to keep the convex shape after baking (as in Italian panettone);*
- *Fine but rich aroma and taste, due to the long fermentation time (32 hours) compared to the nearest solution (19 hours), and as a result the formation of metabolites and amino acids takes place;*
- *Long shelf-life of the product (over 30 days without the use of preservatives or special storage conditions), which is due to the inhibitory effect of organic acids (formed during fermentation) on molds;*

***State of development: patent granted. Implemented at the enterprise "Art_PROECO S.R.L."***

***Contact: +37369608610; Email:*** *rodica.siminiuc@adm.utm.md* *dinu.ţurcanu@utm.md*

***9.***

***Title: CONTRIBUTIONS REGARDING NUTRITIONAL ERADICATION OF GLUTEN CONSUMPTION DISEASES (2021-2023)***

***Project number: nr. 21.00208.5107.06 / PD***

***Authors: PhD, associate professor: Rodica SIMINIUC, PhD student: Dinu ŢURCANU***
***Institution: Technical University of Moldova***

***Category: H***

***Description (Purpose):*** *Cereals and cereal products represent the basic element in ensuring food security of the population. Most cereal-based foods contain gluten, the consumption of which has increased considerably due to its properties for improving the organoleptic indices of the products.*

*As a result, today we are facing a rising epidemic of gluten-related disorders: celiac disease, herpetiform dermatitis and gluten ataxia, gluten allergy and gluten sensitivity. Nutritional therapy is the only treatment for celiac disease unanimously accepted by the medical community and consists of a rigorous gluten-free diet followed for life. GFDs (Gluten Free Diet) are significantly lower in protein, magnesium, potassium, vitamin E, folic acid and sodium, with suggestive trends towards calcium and increased fat intake. Adherence to GFD is a hard path, associated with major changes in daily routine, activities and eating habits, often stressful and difficult to accept.*

*The project tends to solve a major problem, especially for the Republic of Moldova, namely: Ensuring the nutritional security of people with disorders related to gluten consumption by:*

- *Identifying optimal formulas and designing gluten-free cereal-based products (bakery, pastry, and pasta products - the main challenge in a GFD); reasoned and scientific supplementation / fortification of products designed with equivalent sources of essential nutrients to supplement nutritional deficiencies, characteristic for gluten free diets.*
- *Nutritional education on the gluten-free diet, especially regarding the fashionistas' motivations to exclude gluten from the diet. The specific results for ensuring the nutritional safety of people with gluten-related disorders obtained during the project will be based on solid scientific knowledge and evidence in various fields such as: nutrition, medicine, statistics, food sciences, nutritional genomics, microbiology, computer*

*science, social sciences, humanities etc. The project is part of the action plan for the prevention and control of non-communicable diseases in the European region of WHO 2016-2025. It is also reflected in the 2030 Agenda for Sustainable Development.*
***State of development: ongoing***
***Contact:*** *rodica.siminiuc@adm.utm.md dinu.turcanu@adm.utm.md*
***Presentation link:*** *https://cercetari.utm.md/proiecte-de-cercetare/*

***10.***

***Title: PERSONALIZED NUTRITION AND INTELLIGENT TECHNOLOGIES FOR MY WELL-BEING***
***Project number: PS nr.20.80009.5107.10.***
***Authors: Rodica SIMINIUC, Dinu ȚURCANU, Vladislav REȘITCA, Aurica CHIRSANOVA, Daniela POJAR, Rodica CUJBA et al.***
***Institution: Technical University of Moldova***
***Category: H***
***Description:*** *As a result of triggering of the obesogenic food style, resulting from the global adoption of the Western diet and the sedentary way of life, mankind is experiencing a nutritional transition. Non-communicable diseases such as obesity, type 2 diabetes and metabolic syndrome are now collectively responsible for nearly 70% of all deaths worldwide.*

*Developing a personalized nutrition service to improve the quality of life! With this ambitious objective the project was born. The proposed project tends to contribute to solving two major problems of society in general and of the Republic of Moldova in particular:*
*• The insufficient degree of nutritional coverage of different segments of the population (people with celiac disease, allergies, gluten and lactose intolerance, people with diabetes, healthy people but overweight, obesity or other consequences of malnutrition etc.);*
*• The absence of national nutritional software (mobile application) for consumers, especially for children and young people.*
*The project intends:*
*- to elaborate questionnaires and online surveys of public opinion in order to identify people's lifestyles and to develop personalized nutrition services;*
*- to design new local food products and to improve the nutritional coverage of different segments of population;*
*- to create national database on food and nutrition, for the development and implementation of the mobile application;*
*- to develop a national nutritional software (mobile application) for consumers.*

*The specific tools of personalized nutrition developed during the implementation of the project will be based on solid scientific knowledge and evidence from different fields such as: nutrition, medicine, food science, nutritional genomics, microbiology, computer science, social sciences and human sciences such as economics, marketing, psychology, marketing and social anthropology.*
***State of development: ongoing***
***Contact:*** *rodica.siminiuc@adm.utm.md dinu.turcanu@adm.utm.md*
***Presentation link:*** *https://cercetari.utm.md/proiecte-de-cercetare/*

**11.**

***Title: AUTOMATED BEVERAGE MIXING SYSTEM***
***Patent/project number: Student project***
***Author/s: Author: BORNA HESKY, Menthor: ZELJKO SITUM***
***Institution: University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture, Croatia***
***Category: H***
***Description:*** *An automated beverage mixing system is a small device that uses a control algorithm to obtain a combination of beverages in a defined ratio. By automating the fluid mixing process, it is possible to eliminate the possibility of human error while achieving high accuracy of the desired fluid ratio. The device has two containers from which liquids are taken. On the LCD screen, the user selects the standard volume of the glass and the ratio in which he wants the mixture. By starting the process, the mass of the glass in which the fluids are mixed is first subtracted and the pumps are started which deliver the required volume of fluid from the tank, in order to achieve the desired ratio of the beverage mixture. An Arduino microcontroller with an LCD screen is used as a control device.*

*The special feature of the device is its low manufacturing cost, it is easily portable and does not use capsules, as is the case with similar devices. The device also has an option for cleaning pumps and lines with a suitable solvent.*

***State of development: Prototype***
***Contact:*** *info@savez-inovatora-zagreba.hr*
***Presentation link:*** *https://www.savez-inovatora-zagreba.hr/*

**12.**

***Title: Casa MORA***
***Patent/project number: guest house***
***Author/s: Vasiu Dorina***
***Institution: Casa MORA***
***Category: H***
***Description:*** *Casa Mora, the charming guesthouse in Deva, located right at the base of the Citadel. Here, once arrived, tourists return without fail. In addition, the reviews are among the most beautiful, hence the maximum score received, both on booking and on google, being one of the few locations that can boast of such appreciations. Mrs. Dorina, the one who made this achievement possible, is the soul of the guesthouse.*

*Having no experience at the beginning of the business, she ended up excelling in the field, proving, once more, that the man sanctifies the place. With the full support of the family, she built a guesthouse where everything was thought of as "home". Quality, comfort and guest satisfaction are received at Casa Mora: "Words are too few to describe the perfection", "Our stay was superlative, the extraordinary host, the dreamy rooms, the view of the Deva Citadel, the cleanliness, all convinced us that we must come back".*

*This is what most of the reviews look like, as proof that a job well done, dedication, involvement and a permanent desire for evolution are always rewarded.*

***State of development: guest house***
***Contact:*** *casamora@yahoo.com* *+40 742 252 223*

***Presentation link:*** *https://www.casamora.ro/*
*https://www.facebook.com/profile.php?id=100071818509330*

***13.***

***Title: POTENTIAL APPLICATION OF NATURAL ANTIOXIDANTS IN LAYING HENS' DIETS AND THEIR EFFECT ON EGGS' NUTRIENTS OXIDATIVE STABILITY (PHYTOFEED)***
***Project number: Cod depunere PN-III-P2-2.1-PED2021-2001, nr. 631PED/2022***
***Author/s: Predescu Corina, Untea Elena-Arabela, Sărăcilă Mihaela, Vlaicu Alexandru, Ştefan Georgeta, Goran V. Gheorghe***
***Institution: University of Agronomic Sciences and Veterinary Medicine of Bucharest***
***Category: H***
***Description:*** *Functional feeds satisfy the nutritional requirements of animals, support health, and improved the antioxidant properties of table eggs, in natural ways, using functional feed ingredients (co-products of the food industry). The project aims to develop feeding strategies based on functional feed ingredients, which ensure the effect of delaying oxidation reactions and prolonging the shelf stability of lipophilic antioxidants.*

*Eggs are considered one of nature's perfect foods being a rich source of both nutritive and non-nutritive compounds important to human health. Many research studies have demonstrated that through dietary manipulation, bioactive feed compounds may be transferred from the hens' feed into the yolk. The project activities are planned for 23 months, and organized in three phases; the partners involved in project implementation are IBNA Balotesti, USAMVB and Avicola Lumina SA.*
***State of development: Phase I - 2022***
***Contact: Corina Predescu,*** *corina.predescu@fmvb.usamv.ro* ***+40744867527***
***Presentation link:*** *https://www.usamv.ro/index.php/en/home-eng*

***14.***

***Title: VALIDATION IN THE INDUSTRIAL ENVIRONMENT OF TECHNOLOGY FOR OBTAINING NATURAL PRESERVATIVES FOR READY MEALS PRODUCTS IN ORDER TO ACHIEVE FOODS FREE OF SYNTHETIC PRESERVATIVES (CLEANMEALS)***
***Project number: Cod PN-III-P2-2.1-PTE-2021-0508, no. 71PTE/2022***
***Author/s: Predescu Corina, Papuc Camelia, Ştefan Georgeta, Badea Emanuela, Gâjâilă Iuliana, Iordache Florin, Tasbac Bogdan, Temocico Georgeta***
***Institution: University of Agronomic Sciences and Veterinary Medicine of Bucharest***
***Category: H***
***Description:*** *The shelf life of ready meals is ensured by synthetic preservatives (sodium/potassium nitrite, BHA, BHT, benzoic acid and benzoates). An alternative to synthetic preservatives is natural preservatives obtained from fermented parsley and parsnip juices, PETROGUARD and PASTIGUARD, whose production technology has been validated in USAMVB laboratories.*

*The project aims to transfer the CDI knowledge from the research organization involved in the project to the economic partner to validate the technology for obtaining the two preservatives in an industrial environment.*

***State of development: Phase I - 2022***
***Contact: Corina Predescu, corina.predescu@fmvb.usamv.ro +40744867527***
***Presentation link: https://www.usamv.ro/index.php/en/home-eng***

***15.***

***Title: Star Doner & Pizza DEVA***
***Project number: Food Project***
***Author/s: Irimia Marius Ionut & Team***
***Institution: Star Doner & Pizza***
***Category: H***
***Description:*** *We created the STAR Taste World just for you. STAR Doner&Pizza, a new, original concept based on quality and diversity adapted to any situation, with a portfolio of over 70 products.*
*The service is provided directly from our location or based on the order with home delivery.*
***Be different, choose STAR!***
***State of development: products***
***Contact: +40731 588 801***
***Presentation link: https://www.facebook.com/profile.php?id=100088256882595***

***16.***

***Title: Adriana's Honey***
***Project number: producer manufacturer number HD 0231502***
***Author/s: Ignat-Matei Adriana, Ignat-Matei Adriana Daniela, Ignat-Matei Alexandra Roxana***
***Institution: Adriana's Honey Manufacturer***
***Category: H***
***Description:*** *Bee products intended for a healthy diet. In order to produce organic honey, bees are relocated to pollution-free areas as far away as possible from inhabited areas such as mountains, plains, and hills.*
*Adriana's types of honey: polyflora, cherries, lime, chestnut, fir, sunflower, scallops.*
*In addition to honey, we also produce pollen, propolis, wax and a series of ENERGIN-like mixed products.*
*Capaceala is a beekeeping product that people don't really know, but it has great health benefits.*
*As everyone understands, this is the cover of the honeycomb, with which the bees "seal" the honey deposited in each cell of the honeycombs.*
*In the mixture, honey with sea buckthorn fruits represents a complete cure with numerous healing properties for the body. In honey with sea buckthorn we find Vitamin A, the complex of B vitamins (B1, B2, B6, B9), Vitamins E, K, P and F, beta-carotene (more concentrated than in carrots) and other microelements such as calcium, magnesium, phosphorus, iron, potassium and volatile oils.*
***State of development: products***
***Contact: +40720575824 danielaign9@yahoo.com***
***Presentation link: https://www.facebook.com/adriana.ignat.313***

***17.***

***Title: THEREFRESH CONCEPT***
***Project number: 30308550***
***Author/s: Florin Pirus & Team***
***Institution: S.C. COFFEE&BEVERAGE S.R.L***
***Category: H***
***Description:*** *Our company has been on the market for more than 12 years and we are continuously expanding. Our activity is in the HoReCa field, we own 7 coffees hops, a coffee roaster and a restaurant. In our cafes we offer our own brand of specialty coffee, hot chocolate, smoothie bar, catering and delivery services, in addition we are expanded with an online store where we offer our customers a varied range of products and accessories for serving and preparing tea and coffee.*
*Vision*
*TheRefresh is more than a company or even a cafe. TheRefresh is a complex concept, which is based on the strong idea of refreshing, stimulating and educating the senses, to facilitate reaching the optimal level of energy and well-being.*
*TheRefresh is a concept aimed at offering customers a substitute for a healthy and balanced meal in the form of smoothies, teas and coffee.*
*TheRefresh is the place where the team is educated to serve all products in their finished form at the highest quality, honoring cultural factors and professional preparation methods. TheRefresh is more than a company or even a cafe. TheRefresh is a complex concept, which is based on the strong idea of refreshing, stimulating and educating the senses, to facilitate reaching the optimal level of energy and well-being.*
*TheRefresh is a concept aimed at offering customers a substitute for a healthy and balanced meal in the form of smoothies, teas and coffee.*
*TheRefresh is the place where the team is educated to serve all products in their finished form at the highest quality, honoring cultural factors and professional preparation methods.*
***TheRefresh is the place where you can really taste well-being!***
***State of development: products & hospitality culture***
***Contact:*** *florin@therefresh.ro* ***+40 721 726 116*** *www.therefresh.ro*
***Presentation link:*** *https://therefresh.ro/alege-cadoul-perfect-pentru-persoanele-dragi/*

***18.***

***Title: MUDI'S ZANZIBAR***
***Project number: Travel Guide***
***Author/s: Muhammed Suleiman Yussuf***
***Institution: Descopera Zanzibar cu Mudi***
***Category: H***
***Description:*** *I'm Mudi and I am a tour guide here in Zanzibar. I only learned Romanian on the internet and on youtube, and now I have a school where I also teach other friends of mine.*
*If you choose to spend your holiday here you will have the opportunity to discover Zanzibar and its beauty with me. This is my website and the place where I can be with you, my whole story in one place, along with information for tourists about Zanzibar.*

*Zanzibar is an archipelago located off the east coast of Africa and consists of the main island of the same name, Zanzibar or Unguja as the locals call it, and Pemba. The word Zanzibar comes from the Persian language and translates as "coast of black people" and Pemba translates as "green island". Zanzibar is located approximately 6000 kilometers from Romania, the islands being sought after both for the wonderful beaches and reefs, and for the exotic destination.*

***State of development: Travel Guide***

***Contact:*** *https://www.facebook.com/ghidturisticdespre.zanzibar*
*tshabalalajunior17@gmail.com* ***+255 783 396 944***

***Presentation link:*** *https://www.youtube.com/@descoperazanzibarcumudi3671*

# I - Textiles, Clothing, Fashion, Handmade

**1.**

***Title: COLLABORATIVE ONLINE INTERNATIONAL LEARNING IN DIGITAL FASHION - DIGITALFASHION***
***Patent/project number: 2021-1-RO01-KA220-HED-000031150***
***Author/s: Ion Razvan Radulescu (INCDTP Bucuresti), Irina Ionescu (TUIasi), Manuela Avădanei (TUIasi), Carmen Loghin (TUIasi), Andreea Talpă (TUIasi), Carmen Tiță (TUIasi)***
***Institution: INCDTP Bucuresti , "Gheorghe Asachi" Technical University of Iasi, Romania / Faculty of Industrial Design and Business Management***
***Category: I***
***Description:*** *The DigitalFashion project enables education providers to deliver new digital training methods, allowing students and professionals to quickly master key technologies for the design and production of customised products in a virtual environment and fully make use of the knowledge in the entire supply chain. This knowledge mainly lies on digitization which is both a common and an important topic to all the partner countries. Develop three databases (library of knowledge) of textile materials, colors and garment styles as well as two fashion knowledge bases that will be built and integrated into the platform.*

*Develop a supportive platform that will permit fashion students and fashion teachers to design together, in an interactive way, a garment for a specific customer. The special requirements of the customer for the garment will also be communicated via the platform and taken into account in the final design.*
***State of development: application under testing on men's shirt product***
***Contact: +40744100325*** *carmen.tita@academic.tuiasi.ro* *carmen.tita@yahoo.com*
***Presentation link:***

**2.**

***Title: MEASUREMENT EQUIPMENT AND METHOD FOR THE SIMULTANEOUS DETERMINATION OF THERMAL RESISTANCE AND TEMPERATURE GRADIENTS OF LAYERS OF CLOTHING COMPOSITES***
***Patent/project number: P20211208A***
***Author/s: DUBRAVKO ROGALE, SNJEZANA FIRST ROGALE, ZELJKO KNEZIC***
***Institution: University of Zagreb, Croatia, Faculty of Textile Technology***
***Category: I***

***Description:*** *The thermal properties of clothing in most products are still not designed according to engineering science for most products due to the lack of simple and acceptable measuring equipment and methods, so the number of layers of clothing, the type of thermal insulation material and their thickness are chosen empirically. A new measuring device and method for simultaneous measurements in determining the thermal resistance in one or more layers of clothing compo-sites and temperature gradients of composite layers are presented, as well as the theoretical principles of operation and practical results.*

*Clothing technology does not have a long tradition of measurement and metrology techniques needed to test the properties of materials required for the technical design of garments. Therefore, the introduction of a new measurement method for the simultaneous measurement of thermal resistance and temperature gradients is an important novelty for the field of clothing engineering. The novelty is that the measurements of two important parameters for the design of the thermal properties of clothing and of composite clothing (thermal resistance and values of temperature gradients) are carried out simultaneously with one measuring system.*

***State of development: Product, Research project***
***Contact:*** *info@savez-inovatora-zagreba.hr*
***Presentation link:*** *https://www.savez-inovatora-zagreba.hr/*

***3.***

***Title: NO LIMITS***
***Patent/project number: student project***
***Author/s: Kis Petra-Antonia***
***Institution: Politehnica University of Timisoara, Faculty of Architecture and City Planning***
***Category: I***
***Description:*** *Goth is making a comeback in a period when no aesthetic feels off limits. Nothing feels strange or unusual anymore, it's all about fashion choices and people who feel free to be themselves, even when they want to be perceived as a void or an otherworldly being.*

*The artwork bring to the forefront the freedom of expression and the encouragement to show the inner self. The artwork is supporting the idea of free will by the side of the fashion movement approached by Balenciaga in their 51st collection.*

*At the moment, these models are perceived as a void, an otherworldly being, strange and wickedly shameless, but it's just a fashion choice.*

***State of development: fashion project***
***Contact:*** *kispetra04@gmail.com*
***Presentation link:*** *http://www.arh.upt.ro/*

***4.***

***Title: CREATE YOUR OWN HAPPINESS***
***Patent/project number: student project***
***Author/s: Marginean Giulia Ada***
***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: F***

***Description:***
*As Yves Saint-Laurent states " The most beautiful make-up of a woman is passion, but cosmetics are easier to buy" this passion took shape in my life, from an early age, when I borrowed my mother's makeups.*

*A "new face" can give a great self-confidence, the careful application of makeup on a woman's face can thus become the meeting between what the woman is and the ideal she wants about her person, he makes her feel complete. Even the most natural appearance is often grown with toil*

*There is no standard makeup! To achieve it we must take into account the type of face, the color and shape of the eyes, the personality, the event for which it is performed, the outfit, etc., so you can play with shades, shadows, textures that miraculously transform you.*

***State of development: product***
***Contact:*** *giulia.ada05@gmail.com* ***Tel: +40735283802***
***Presentation link:*** *https://www.facebook.com/giulia.marginean*

***5.***

***Title: FASHION SAYS "ME TOO" STYLE SAYS "ONLY ME"***
***Author/s: Albescu Corina***
***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: I***
***Description:*** *Because "Style is a simple way to say complicated things", my goal is to help people refine and find their own style, having the courage to assume it, through the clothes I create. The uniqueness of the clothes is given by the small differences, the personal fingerprints of the designer.*

*The details on the clothes highlight the creativity of the one who makes them, and sometimes the ideas of the one who wears them. The difference between style and fashion is quality, the choice of clothes must be according to our lifestyle, you yourself have to decide who you are and what you want to convey through the way you dress and live your life. As Katharine Hepburn says, "I wear what I like, so that I don't have to bother with what I should wear".*

***State of development: product***
***Contact:*** *albescu.corina@yahoo.com* ***Tel: +40754990236***
***Presentation link:*** *https://instagram.com/_coco.a.clothes_?igshid=YmMyMTA2M2Y=*

***6.***

***Title: THE WORLD OF NAILS***
***Patent/project number: C.U.I 41936178***
***Author/s: ANA MARIA TIMPEAN***
***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara; Timpean Ana Maria Intreprindere Individuala***
***Category: I***
***Description:*** *The nail is a thin plate that grows on the top of the last phalanx of the fingers and covers the top of the fingertips. The most important methods to style a nail is semi-permanent nail polish, and to give it length you can use the construction on the template or the construction from smart shapes tips. There is also the old tips that are no longer used.*

*The construction of the nail can be done with:*

- *Gel*
- *Acryl*
- *Poly-gel*

*The construction of gel nails is recommended for people who want a flawless manicure for a long time but it is very effective and for women whose natural nails are not very resistant, they break quickly or exfoliate immediately.*

***State of development: products***
***Contact:*** *ana.timpean@student.upt.ro* ***Tel: +40736358913***
***Presentation link:*** *https://www.facebook.com/thebeautyroom.hunedoara*

*7.*

***Title: INTELLIGENT SYSTEM FOR MONITORING VITAL PARAMETERS IN CHILDREN WITH SPECIAL NEEDS***
***Patent/project number: WIPO85961, DM/203338***
***Author/s: Victoria Danila, Stela Balan, Antonela Curteza, Marcel Vîrlan***
***Institution: Technical University of Moldova, Technical University Gh. Asachi Iasi***
***Category: I***
***Description:*** *The benefits of the products are the intelligent system for obtaining information about the child's health, the shape of the product, it easily allows the integration of a system for monitoring the child's vital parameters.*

*The design of smart products consists of flat elements with minimal seams, which are safe and comfortable and at the same time monitor the state of health. The product provides information to medical staff and parents about the child's condition in a short time.*

***State of development: prototype***
***Contact:*** *victoriavasiledanila@gmail.com*
***Presentation link:*** *https://utm.md/en/*

*8.*

***Title: PATRICIA'S HANDMADE ACCESORIES***
***Patent/project number: Handmade creations***
***Author/s: Patricia Nelega***
***Institution: SC MOFT STUDIO SRL***
***Category: I***
***Description:*** *Patricia's Handmade is a concept based on creativity, sensitivity, passion for everything that art means. The products, unique, are designed for an avant-garde look. Diversity is the strong point of Patricia's Handmade creations from brooches, earrings, decorations to projects for special events: weddings, christenings, anniversaries etc. All products are customized according to by the preferences of those for whom they are created.*
***State of development: products***

**9.**

***Title: ATELIERUL LUI BUTONEL***
***Patent/project number: handmade creations***
***Author/s: SOLDAN ROXANA***
***Institution: ATELIERUL LUI BUTONEL***
***Category: I***
***Description:*** *It is all about polymer clay, personalized and unique gifts decorated by hand with patience and love. From little pieces of clay to portraits, name tags, movie and cartoons characters, cute animals, appreciation and love messages and so much more. The limit is your imagination!*
*It takes time, a lot of clay, a good cutter blade, sometimes some pastel colours and a lot of creativity to create the perfect gift, and that makes worth it☺.*
*You can see some of my creations in the attached photos and, also, you can see my activity on my Facebook Page : Atelierul lui Butonel and follow me on instagram @atelierulluibutonel.*
***State of development: products***

**10.**

***Title: MINERAL AND AROMATHERAPY JEWELRY***
***Patent/Project number: Handmade creations***
***Author/s: Török Józsefné***
***Institution: Ötlet Club 13 Egyesület Hódmezővásárhely, Hungary***
***Category: I***
***Description:*** *The jewelry is made of real, natural minerals. I tie the material of the bracelet to elastic rubber. Aromatherapy jewelry is made using real Sandalwood or Rosewood woodball and 100% essence. It can be worn as a perfume anywhere, anytime.*
***State of development: product***

# J - Kids Corner, Games, Toys, Outdoor activities

**1.**

***Title:*** *SMART PORTABLE BODY TEMPERATURE MONITORING DEVICE USING INFRARED SENSOR*
***Patent/project number:*** *COPYRIGHT*
***Author/s:*** *ADAM SUFI MOHD MUSTAFA AL BAKRI, EZZ EILMAN MOHAMAD EZRAL, MUHAMMAD QAISER FAHEEM MOHD ZUL FAUZI*
***Institution:*** *SEKOLAH KEBANGSAAN SENA PERLIS*
***Category:*** *J*
***Description:*** *Infectious diseases such as COVID-19 that have symptoms such as fever are difficult to detect before a person enters the premises or social events that cause a high risk of infection. How to record body temperature for a person with symptoms or fever using traditional methods is not suitable because the temperature reading can be obtained when the temperature measuring device measures the temperature in one place only. Need a measuring device that is portable and can be carried anywhere and always record the temperature to allow people to be better prepared and able to avoid people who have a fever and symptoms.*

*Currently there is an increase in Covid-19 cases as well as influenza cases in children. Usually the initial effect is with high fever with temperatures above 37.5 degrees Celsius. To solve this problem, Smart Portable Body Temperature Monitoring Device Using Infrared Sensor can help to detect and take appropriate action.*
***State of development:*** *RESEARCH PROJECT – PRODUCT*
***Contact:*** *mustafaalbakri79@gmail.com*
***Presentation link:*** *http://www.sksena.edu.my/*

**2.**

***Title:*** *Imagine and color recognition with the help of AI created in Python*
***Patent/project number:*** *student project*
***Author/s:*** *Robert MUTU, Mihaela POPA*
***Institution:*** *Politehnica University Timişoara, Faculty of Engineering Hunedoara*
***Category:*** *E*
***Description:*** *The following project presents what can be achieved with image recognition and color recognition.*

*Image recognition, in the context of machine vision, is the ability of software to identify objects, places, people, written texts, and actions in images.*

*Computers can use machine vision technologies in combination with a camera and artificial intelligence software to achieve image recognition.*

*Image recognition is used to perform many machine-based visual tasks, such as labeling the content of images with meta-tags, performing image content searches, and guiding autonomous robots, self-driving cars, and accident-avoidance systems.*

*While human and animal brains recognize objects with ease, computers have difficulty with the task.*

*Software for image recognition requires deep learning. Performance is best on convolutional neural net processors as the specific task otherwise requires massive amounts of power for its compute-intensive nature.*

*Image recognition algorithms can function by use of comparative 3D models, appearances from different angles using edge detection, or by components.*

*With guided computer learning, image recognition algorithms are often trained on millions of pre-labeled pictures.*

*Current and future applications of image recognition include smart photo libraries, targeted advertising, the interactivity of media and accessibility for the visually impaired, and enhanced research capabilities.*

***State of development: video game***
***Contact:*** *elapopa60@gmail.com*
***Presentation link:*** *https://fih.upt.ro/*

**3.**

***Title: Animation***
***Patent/project number: student project***
***Author/s: Pavle Trišović***
***Institution: Faculty of Contemporary Arts, Belgrade, Serbia***
***Category: J***
***Description:*** *The Photoshop program was used and the result is an 11-second animation created from 122 digital drawings that the author also created in Photoshop. This animation is originally in PDS format which was then converted to GIF with better manipulative properties (supportability and portability).*
***State of development: Gif project***
***Contact: +381631033990, Email:*** *pavle.trisovic@fsu.edu.rs*

***Presentation link: scan QR code***

**4.**

***Title: A&O Game***
***Author/s: Albescu Oana, Albescu Corina***
***Institution: Polytechnic University of Timisoara, Faculty of Engineering Hunedoara***
***Category: J***
***Description:*** *Logic games are a kind of gymnastics of the brain. It trains the speed and flexibility of thinking in a pleasant way through a series of cognitive processes that differ from one type of game to another. That's why logic games are among the most interesting and varied and bring a lot of benefits for any age.*

*Solving any game involves implementing a different way of thinking than the native one, going through stages or creating new routes or strategies and adapting them to win or complete the game.*

*Going through a game involves at the same time keeping an overall perspective, but also following the logical steps and details in order to reach the resolution.*

*The game is like this: it fills in the square in the image. On each row and column there is an equal number of letters "A" and "O". There can be no more than two letters "A" or "O" joined or one above the other.*

***State of development: product***
***Contact:*** albescu.corina@yahoo.com albescu.oana@yahoo.com
***Presentation link:*** https://www.facebook.com/oana.albescu

**5.**

***Title: CONSTRUCTION LOGIC GAMES***
***Patent/project number: logic games***
***Author/s: Lajos Poczók (Budapest)***
***Institution: Idea Club 13 Association, Hódmezővásárhely, Hungary***
***Category: J***
***Description:*** *Construction logic games, their forms, shapes, suitable for educational purposes.*
***State of development: product***
***Contact:*** otletclub.idea@freemail.hu
***Presentation link:*** https://otletclub.5mp.eu/web.php?a=otletclub

**6.**

***Title: 3D PUZZLE LOGIC BALL GAME***
***Patent/project number: puzzle game***
***Author/s: József Bandi (Lenti)***
***Institution: Idea Club 13 Association, Hódmezővásárhely, Hungary***
***Category: J***
***Description****: Sorting and stacking small balls of various colour groups in interestingly placed transparent toy balls of different sizes by colour with the specified number of and countless color variation options.*

***State of development: product***
***Contact:*** *otletclub.idea@freemail.hu*
***Presentation link:*** *https://otletclub.5mp.eu/web.php?a=otletclub*

*7.*

***Title: ENERGY EARTH BOARDGAME***
***Patent/project number: student project***
***Author/s: Dariana Alb, Sarah Ajtay, Anca Gostian, Adelina Kelemen, Bogdan Neamțu, Alexandra Sava, Delia Solomon, Ianis Vardea, Raluca Săpunaru, Paul Țoța (coordinator)***
***Institution: Centrul Județean de Excelență Hunedoara***
***Category: J***
***Description:*** *The proposed project is a board game about the global electricity grid and methods of producing energy while protecting the environment.*

*The game strategy takes into account elements such as the costs of energy production, taxes for from non-green energy sources and many others.*
***State of development: Prototype***
***Contact:*** *paultota79@yahoo.com*
***Presentation link:*** *www.cexhd.ro*

*8.*

***Title: CLUB EVOLUȚII cu Alexandra Marcu - winter sports***
***Patent/project number: Outdoor project***
***Author/s: Alexandra Marcu***
***Category: J***
***Description:*** *Club Evolutii is an organisation from Romania, providing personal development activities based on mountain and traveling education.*

*We organize mountain hikes, expeditions, camps and educational courses for children who want to become explorers and enjoy many experiences and adventures.*

*Did you know that skiing offers a series of very important advantages?!*

*1. More calories burned*

*Skiing is an excellent cardiovascular exercise, which can help you burn serious calories and shed extra pounds.*

*The number of calories you burn per hour is based on your weight and fitness level, but according to the Harvard Medical School, a person who weighs 85 kg will burn 266 calories in 30 minutes of downhill skiing.*

*Beginners can get extra calories burned by going up the slope, instead of using the ski lift. As for advanced skiers, the steeper the slope, the more calories they will burn, because the body has to work harder to maintain its balance.*

*2. Strengthens the muscles of the lower body area*

*This winter, take the training from the gym directly to the game!*

*Skiing naturally keeps the body in a squatting position, which strengthens the quadriceps, hamstrings, calves and glutes.*

*Because you will be distracted by the beauty of the surrounding area or too focused on going down the slope, you will not notice how much your legs burn, but you will definitely feel the results the next day!*

*3. Improve flexibility*

*The very art of balancing and tensing the trunk and key muscle groups while skiing makes the body more flexible!*

*As in any sport, it is recommended that you have a stretching routine before going on the track. It is also welcome to do some stretching afterwards to avoid injuries. A regular stretching routine, which focuses on the basic muscle groups, will strengthen the abdominal muscles, obliques and hips, groups that you use in alpine skiing.*

*4. Improves mood*

*Movement in the open air promotes an increased production of endorphins, which leads to a feeling of liberation and happiness.*

*In addition, winter sports offer families time together in nature, extremely important moments in winter, when the days are shorter and the time spent with the family is reduced.*

*Regardless of the duration and frequency with which you do this activity, skiing is extremely beneficial not only for your physical health, but also for your mental health.*

***State of development: traveling education***

***Contact:*** *alexandraflaviamarcu@gmail.com* ***+4 0723 219 655***

***Presentation link:*** *https://youtu.be/dWtHnLez57g*

**9.**

***Title: OUTDOOR PLAYGROUND EQUIPMENTS***

***Patent/project number: No 185544***

***Author/s: LARISA RERAT***

***Institution: EXPERT AVENTURA PARC, TRADEMARK CHINGI EXPERT***

***Category: J***

***Description:*** *The products are designed to solve the lack of diversity whiten the playground field. CHINGI EXPERT manufactures high quality and safe webbing equipment's. Our main goal is to make outdoor exercise more appealing and to disconnect, for a short time, children, from the digital world.*

*CLIMBING NET - Children are born to climb! The benefits of climbing can be divided into five categories: physical, mental, sensory awareness, and health.*

*FRIENDSHIP NET - Children adore sharing stories! Nets are an excellent place for kids to interact with others. On this net you can sit back, relax and have a conversation with your friends.*

*ADVENTURE OBSTACLE COURSE - Children are the best at overcoming! This obstacle course will motivate children to improve themselves with a fun yet difficult challenge.*

*SWING HAMMOCK - Children love to swing! Our swing hammock offers both the fun of swinging and complete relaxation after a long day.*

***State of development: products***

***Contact:*** *www.expertaventuraparc.ro office@chingi-expert.ro* ***+40749090725***

***Presentation link:*** *https://youtu.be/Algf8Xm7s4Q*

**10.**

***Title: MOBILE MARKETING TOOL BASED ON GAME SPECIFIC TECHNIQUES / GAMIFICATION***
***Patent number: OSIM A00088/14.02.2018***
***Author/s: Andreea Cristina IONICĂ, Monica LEBA, Mihaela ZICA, Simona Mirela RÎUREAN***
***Institution: University of Petroşani***
***Category: J***
***Description:*** *The invention aims to influence consumer behavior, using as a support a mobile application based on game-specific techniques, with the general objective of improving the means of promotion.*
***State of development: prototype***
***Contact:*** *pdragos_74@yahoo.com*
***Presentation link:*** *https://www.upet.ro/en/*

**11.**

***Title: First Person Shooter Game Development with UNREAL ENGINE***
***Patent/project number: Student project***
***Author/s: Golcea Julia Daiana, Obrenovici Lavinia Ioana, Marinuț Gabriel Paul, Sapta Doru Ioan***
***Institution: Polytechnic University of Timisoara, Faculty of Engineering Hunedoara***
***Category: J***
***Description:*** *This project consists in the development of a first person shooter game genre, using the Unreal Engine software. The game contains a scene with a character equipped with a weapon used for eliminating the enemies without dying. In the scene obstacles are present, used for making the player mission harder because the obstacles as well as enemies can inflict damage. Among the first FPS games we can mention Gun Fight, it was launched in 1969, and the game consists in two players trying to shoot each other while being a cowboy character. Unreal Engine it's a software used for game development, was developed by Epic Games in 1988. This engine offers tools and characteristics helping the developers to create a game with less knowledge of coding. For this First Person Shooter the game begins with the creation of the scene using Unreal Engine, the characters were added as cubes later being modified with blueprints from the library. The character was placed in the scene, with a weapon that was previously created in blueprint afterwards adding the necessary code for the weapon to shoot and to inflict damage.*
***State of development: Virtual idea***
***Contact:*** *giulia_daiana18@yahoo.com*

**12.**

***Title: Sebi Lego***
***Patent/project number: Kid project***
***Author/s: Sebastian Rotea***
***Institution: Schillerschule - Dettingen an der Erms, Klasse 5c, Germany***
***Category: J***

***Description:*** *Creative projects made by Sebi, innovative creations from Lego pieces, natural materials and recyclable materials. Lego constructions are the passion of mine. I like to build Lego cars, ships, planes, but most of all we like to build my own creations / inventions.*

*After I come home from school I do my homework and then start crafting my favourite projects such as monster truck, car parking buildings, ambulance cars, racing cars, fire trucks.*

*Another passion of mine is the collection of miniature cars such as: HotWheels, MachBox, BBurago.*

***State of development: Lego project***

***13.***

***Title: Alex's creations***
***Patent/project number: Kid project***
***Author/s: Alexandru Rotea***
***Institution: Kindergarten Kegelwassen - Dettingen an der Erms Gruppe Hase, Germany***
***Category: J***
***Description:*** *I'm Alex and I like to draw in coloring books but also to make my own drawings, especially with cars. I am also good at constructions made of cubes such as buildings, castles, bridges, animal houses. This year I also tried more complex Lego projects that I built with the help of my brother Sebi.*
***State of development: cubes & lego project***

***14.***

***Title: CHRISTMAS DECORATIONS***
***Patent/project number: Kids project***
***Author/s: Students of class I A; Coordinator: Prof. Coman Mirela Roxana***
***Institution: Economic College "Emanuil Gojdu" Hunedoara - Secondary School no. 7***
***Category: J***
***Description:*** *The Christmas fair organized within the Economic College "Emanuil Gojdu" Hunedoara aimed to develop the creative and innovative spirit by making decorations specific to the winter holidays. Students, parents and teachers made traditional decorations and products by hand.*
***State of development: handmade Christmas decorations***
***Contact:*** *roxana.coman15@yahoo.com*
***Presentation link:*** *https://youtube.com/shorts/-_jPsSqV8yo*

# K - Innovative ART, Music, Video, Photography, Publicity

**1.**

***Title: MOBILE APPLICATION FOR STORING RECEIPTS, INVOICES AND GUARANTEES***
***Patent/project number: patent no. 125034/30.07.2013.***
***Author/s: Antal Sebastian-Dionisie, Moca Sebastian, Dan Alexandru***
***Institution: "Lucian Blaga" University of Sibiu, Faculty of Engineering***
***Category: K***
***Description:*** *This project aims to create a mobile application allowing us to store receipts, invoices and warranties received following any type of purchase.*

*The application is based on the Near Field Communication (NFC) system, through which the mobile phone receives information from the cash registers, which stores it in the application according to the parameters entered in the source code.*

*This process takes place only by using the application and bringing the mobile phone closer to the cash register. The data is stored in the phone's memory, which is used for the application, eliminating the need for an external database, which increases security.*

*The interface of the application is user-friendly and has the options "Receipt", "UtilityInvoice", "Quarantee" and "Contact us". In order to use the application, it is necessary to create an account.*
*Applications:*
*All areas in which, following purchases, we receive receipts, invoices and warranties.*
*Advantages:*
*It protects the environment by reducing the paper used for receipts, invoices and warranties.*
*It is a free, safe and easy-to-use application, which allows you to customize your interface and content.*
*It allows you to see the content, both during and after generation, eliminating the inconvenience caused by losing a warranty.*
*The application can be used on Android, iOS and harmony os.*
***State of development: Virtual idea***
***Contact: Mobile Phone: +40 755 808 834; +40 771 380 124; +40 730 832 448.***
***Email:*** *alexandru.dan@ulbsibiu.ro sebastian.moca@ulbsibiu.ro sebastian.antal@ulbsibiu.ro*
***Presentation link:*** *https://www.ulbsibiu.ro/en/ https://inginerie.ulbsibiu.ro/*

**2.**

***Title: DESIGN A DIGITAL STORE FOR SPARE PARTS IN SAUDI ARABIA***
***Patent/project number: Student Project***
***Author/s: Abdullah Khaled Al-Ghamizi, Supervised by Dr. Maged Farouk***
***Institution: Onaizah Colleges, Saudi Arabia***
***Category: K***
***Description:*** *The project presents the successive stages to design a digital store for spare parts In Saudi Arabia. No one can deny the impact of the Coronavirus on all countries of the world in all respects, most notably the increase in the number of digital stores. In the Kingdom of Saudi Arabia, the number of digital stores increased by 12.45% to reach 28,676 stores and electronic platforms in 2020, which makes designing digital stores of great importance.*
*You can do this through several steps or procedures approved by the Saudi government:*

- *Go to the website of the Saudi Ministry of Commerce and Investment to issue the electronic commercial registration*
- *Register on the site.*
- *Go to the service and choose your trade name.*
- *Register the commercial data to be registered.*
- *Confirm the data.*
- *Through the SADAD system, pay the commercial registration fees and the membership of the Chamber of Commerce in a unified invoice.*

*Register with Maroof*
*One of the necessary steps after obtaining the commercial register is to register with Maroof platform. This allows you to register your store in the database of the Ministry of Commerce.*

- *Enter the service link.*
- *Click on the "Create Account" icon, and then fill in the required fields.*
- *After logging in, click on the "My Business" icon and then the "Add work" option.*
- *Fill in the required fields and then click on the "Add work" icon.*

***State of development: Moderate***
***Contact:*** *Magedfarouk5@gmail.com*
***Presentation link:***
*https://drive.google.com/drive/u/1/folders/1F5QYOjxoLxg5Tsq7V6dvf6AFy9Wk1hpJ*

**3.**

***Title: THE PAINT BRUSH – A BRIDGE BETWEEN REAL AND MAGIC***
***Patent/project number:***
***Author/s: Edwina Kasler***
***Institution:***
***Category: K***
***Description:*** *Science and art are considered by most of us to be different or totally opposite fields. Even if according to this paradigm they have no common element, reality contradicts us. The two domains are like asymptotes of the graphs of some functions. It gets very close and generates an interface zone.*

*The research project aims to analyze this possibly common surface and show how science influences art and art becomes a model for science.*
***State of development: research project***
***Contact:*** *edwinakasler@yahoo.com*
***Presentation link:*** *https://www.facebook.com/edwina.kasler*

**4.**

***Title: FACTORS RESPONSIBLE FOR CLIMATE CHANGE & MESSENGERS OF PEACE***
***Patent/project number: painting***
***Author/s: Katalin N. Sebestyén***
***Institution: Hungary***
***Category: K***
***Description:*** *I am not an inventor, but I make paintings with scientific and explanatory text on astronomical themes.*

*It is typical for my creations to have a scientific explanatory text next to the displayed image, because every day I receive the latest telescopic images from NASA, such as those taken by Hubble and James Web.*

*I am also a member of the Hungarian Astrophotography Association, from which I also draw my subjects.*
***State of development: painting 60x80 cm, acrylic, wood fiber***
***Contact:*** *vizonto.2008@gmail.com*
***Presentation link:*** *www.nsebestyenkatalin.hu*

**5.**

***Title: Art by Miruna***
***Patent/project number: drawing project***
***Author/s: DIANA MIRUNA ARMIONI***
***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: K***
***Description:*** *„Art by Miruna" includes a variety of faces, from friends and colleagues to artists or other personalities, illustrated in a realistic, detailed style.*

*The drawings were previously exhibited in several events, organized both by the Faculty of Engineering Hunedoara („Facultatea Altfel FIH" – European Researchers' Night), and by the CorneliuGroup Association („Inventions, inventors, passions at the Deva Fortress") or the Deva City Hall („Diamond Eyes", „Art Corner by Miruna" - held on Deva Fortress).*
***State of development: art exhibition***
***Contact:*** *armionimiruna@yahoo.com*
***Presentation link:*** *https://www.facebook.com/ArtByMiruna*

6.

***Title: Ethereal***
***Patent/project number: photography project***
***Author/s: DIANA MIRUNA ARMIONI***
***Institution: Politehnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: K***
***Description:*** *„Ethereal", as the world itself is defined, means „ in a way that seems not to be of this world". The images selected for this photo series convey the same otherworldly feeling of stillness yet inner turmoil, calmness yet chaos, light yet darkness.*
***State of development: photography project***
***Contact:*** *armionimiruna@yahoo.com*
***Presentation link:*** *https://www.facebook.com/mirunaarmioniphoto*

7.

***Title: ROMANATUL***
***Patent/project number: Student project***
***Author/s: Sapta Doru Ioan, Obrenovici Lavinia Ioana, Chira Sorina Mihaiela, Strugaru Dragoş***
***Institution: Politechnica University of Timisoara, Faculty of Engineering Hunedoara***
***Category: K***
***Description:*** *ROMANATUL SRL is a Romanian based company, that activates in the field of medical supplies and delivers the best high-end equipment for all it's customers. We started our business in 2012 with a small range of products and just a handful of customers. Now we deliver our products to more than 50 public hospitals, and 100+ private dental offices in the whole country.*

*We entered this industry because we didn't find the medical equipment that was used in 2012 to be at it's peak performance, and we wanted to change it for us, our customers, and all the patients that go to a public hospital in Romania. Our main products are syringes, scalpels, different types of clamps, surgical fields and much more.*
***State of development: products***
***Contact: +40 733 372 603***

8.

***Title: THE MULTIMEDIA CLASS - 2022 PROJECTS***
***Patent/project number: Student project***
***Author/s: Multimedia Technicians High School L.T.E. "Dragomir Hurmuzescu"***
***Coordinator: Marius Dragomir***
***Institution: L.T.E. "Dragomir Hurmuzescu" Deva***
***Description:*** *Within the profile of multimedia technician from the L.T.E. high school "Dragomir Hurmuzescu" Deva our students start a career in the media industry. During the four years of study, our students learn about photography, film technology, film equipment, animations, internet, sound and image processing, radio and television.*

*Multimedia technician performs activities that involve: processing and combining graphics, image, sound, animation, video sequences using digital technologies (multimedia system) through which interactive content is created and played, applying legislation and regulations regarding safety and health at work, preventing and extinguishing fires, using specialized technical language, assuming the responsibilities and roles that fall to him in the team, developing his ability to make decisions and solve specific problems at the workplace, strengthening his attitudes of fairness, respect , confidence in one's own strength, satisfaction for a job well done.*

*Be creative and say YES, start a media career!*

*The multimedia class was involved in many projects this year such as:*

*- High school without net - BIG FM radio show dedicated to multimedia class students;*

*- Outdoor photo sessions at Padurea Bejan in Deva. Xth grade students, multimedia profile, from Dragomir Hurmuzescu L.T.E. High School participated, guided by teacher Marius Dragomir;*

*- The photography laboratory organized as part of the Night of European Researchers event with the aim of immortalizing the activities, exhibits, experiments and interactions on the spot;*

*- An interesting and at the same time challenging project was the creation of the presentation Teaser of the INVENTCOR International Exhibition 2022. For this purpose, we used photographers provided by the organizers but also photos taken by the students of the multimedia class and short videos.*

***State of development: video teaser***
***Contact: +40 733 372 603*** ***marius.dragomir@big-fm.ro***
***Presentation link:*** ***https://www.energeticdeva.ro/***

***9.***

***Title: Metasmorphosis***
***Patent/project number: PhotoArt***
***Author/s: Stoica Adrian***
***Institution: Adrian StoicaPhotoArt***
***Category: K***
***Description:*** *Metamorphosis is an artistic photographic project that refers to inner metamorphosis, which is not only a change of form, but one of behavior, following the reset of values, a long process of analysis, reflection.*

*Inner metamorphosis begins with a journey, with an introspection. The construction of the self is an extensive process, and trials place the human being in front of the stable and the ephemeral, in front of the known and the unknown.*

***State of development: Photography***
***Contact:*** ***adistoica21@gmail.com***
***Presentation link:***
***https://www.facebook.com/AdrianStoicaPhotoArt/photos/a.1586253504964490/3210649275858230/***

**10.**

***Title: Transcendent***
***Patent/project number: PhotoArt***
***Author/s: Stoica Adrian***
***Institution: Adrian StoicaPhotoArt***
***Category: K***
***Description:*** *Transcendent is an artistic photographic analogy about change. Nothing really disappears, it just changes into something else. Something beautiful. The beautiful human strives for perfection. If he cannot speak against the ugly, he remains silent, but in his silence there is a Christian refusal of everything that is ugly.*
***State of development: Photography***
***Contact:*** *adistoica21@gmail.com*
***Presentation link:***
*https://www.facebook.com/AdrianStoicaPhotoArt/photos/a.1586253504964490/3210649275858230/*

# *InventCor 2021*

***Promo:*** *https://youtu.be/2M8KxCUqCaM*


2022

# Catalog 3rd International Exhibition InventCor

## 15-17.12.2022 – Deva, Romania

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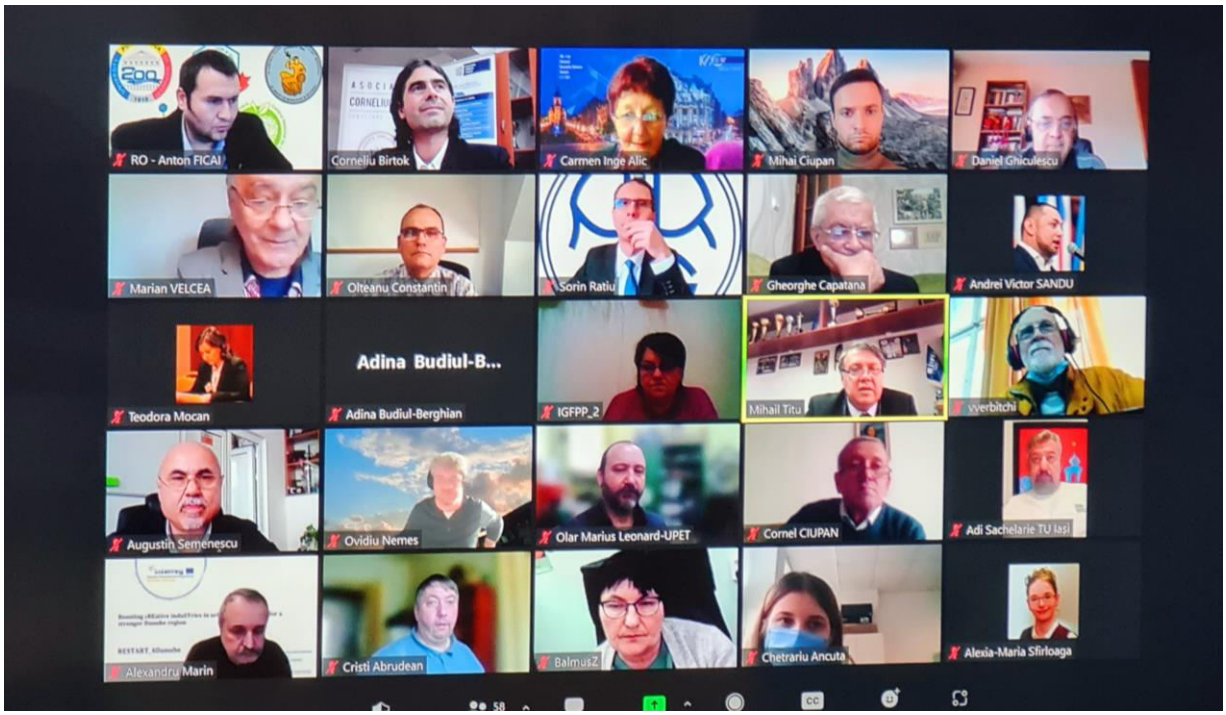
Power of Creative Mind





Deva 92,6 FM
Hunedoara 88,9 FM
www.bigfm.ro
International Exhibition
INVENTCOR
16 – 18
DEC 2021
Deva, Romania

2022

# Catalog 3rd International Exhibition InventCor

## 15-17.12.2022 – Deva, Romania

CORNELIUGROUP research-innovation association

INVENTCOR

Power of Creative Mind



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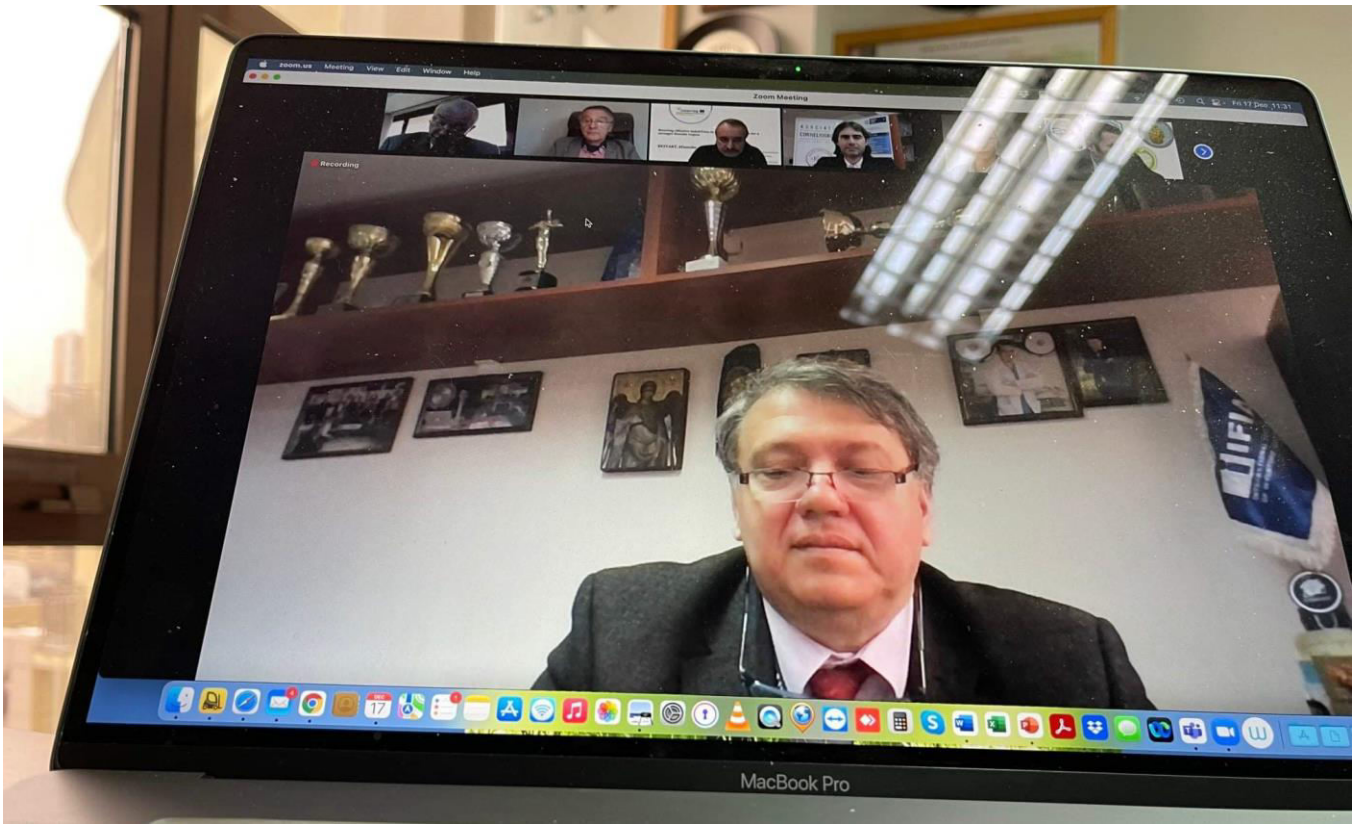
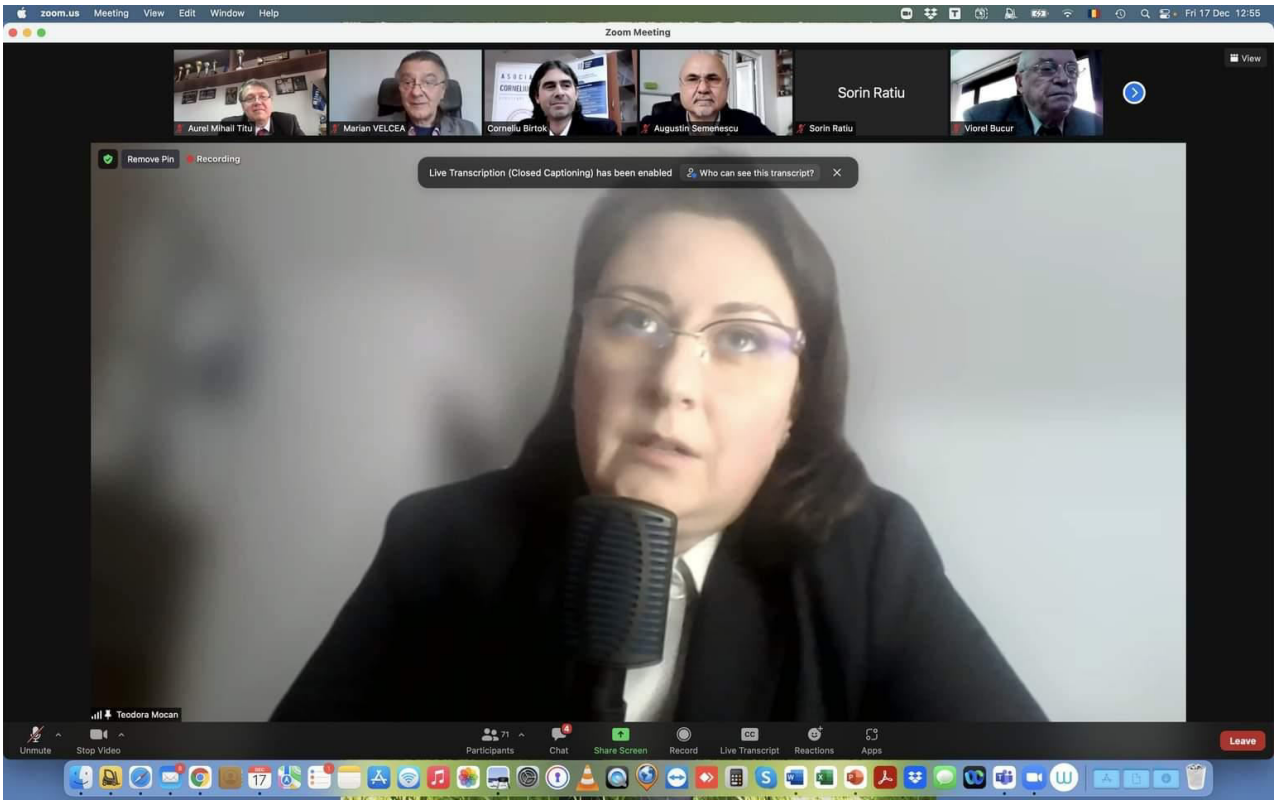

Zoom Meeting
Recording
MacBook Pro


zoom.us Meeting View Edit Window Help
Thu 16 Dec 12:33
Zoom Meeting
Recording
Live Transcription (Closed Captioning) has been enabled
Who can see this transcript?
Cornelliu Birtok
Raisa Ivanova
Mihaila Victoria
prof. Dumitru...
Ana Socalici


zoom.us Meeting View Edit Window Help
Fri 17 Dec 12:55
Zoom Meeting
Aurel Mihail Titu
Marian VELCEA
Cornelliu Birtok
Augustin Semenescu
Sorin Ratiu
Viorel Bucur
Remove Pin
Recording
Live Transcription (Closed Captioning) has been enabled
Who can see this transcript?
Teodora Mocan
Unmute
Stop Video
Participants
Chat
Share Screen
Record
Live Transcript
Reactions
Apps
Leave

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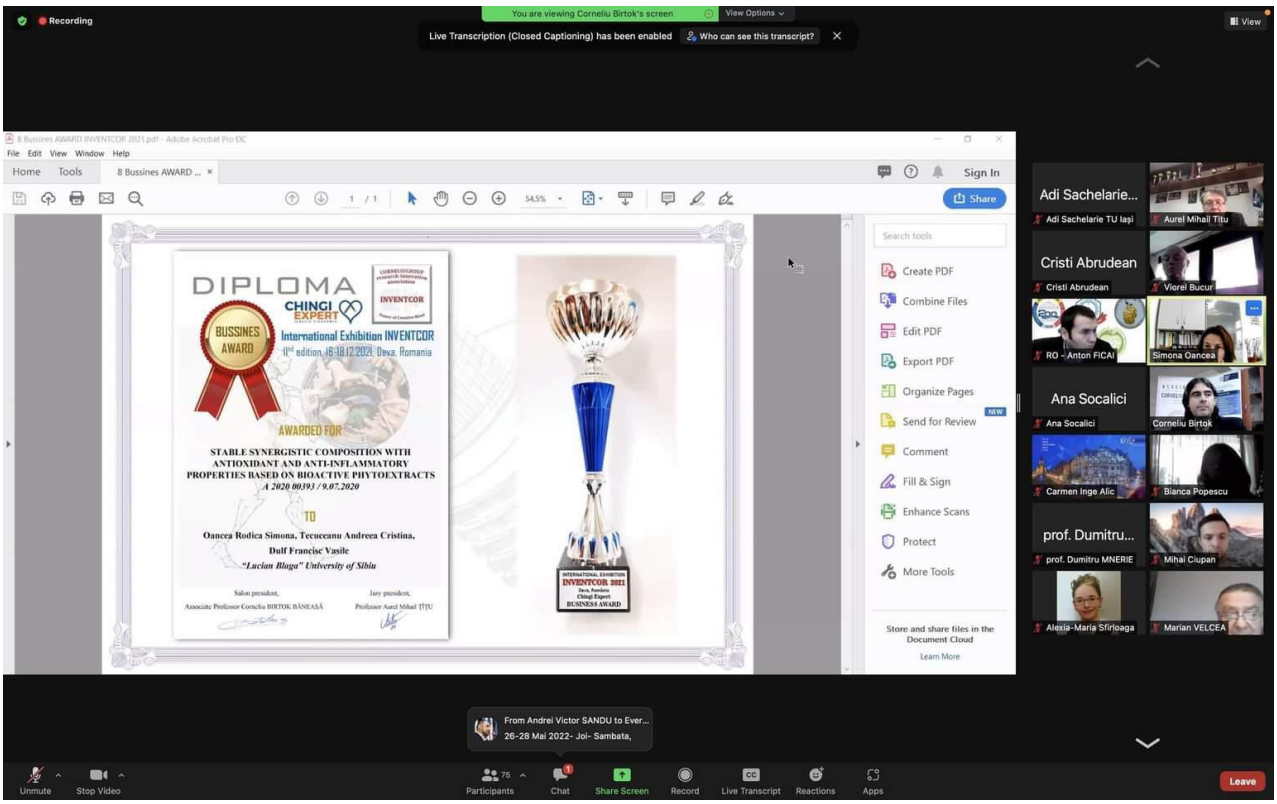
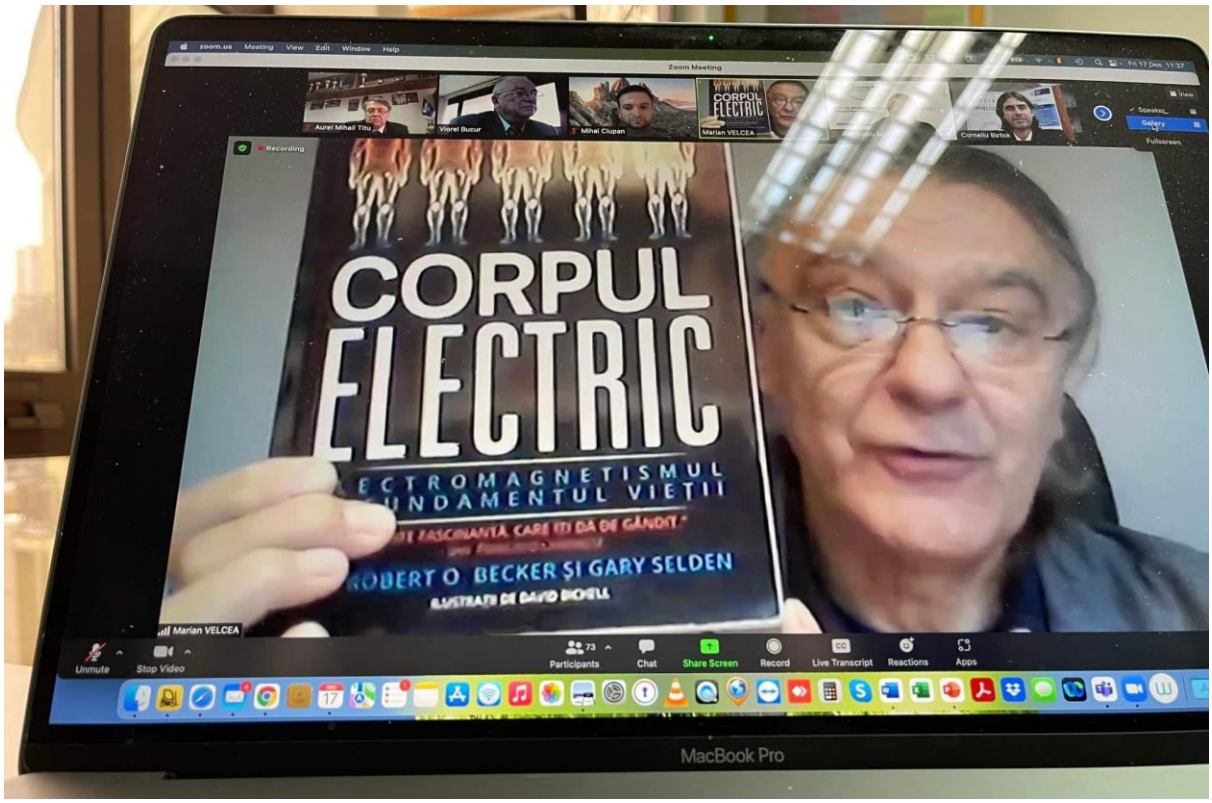
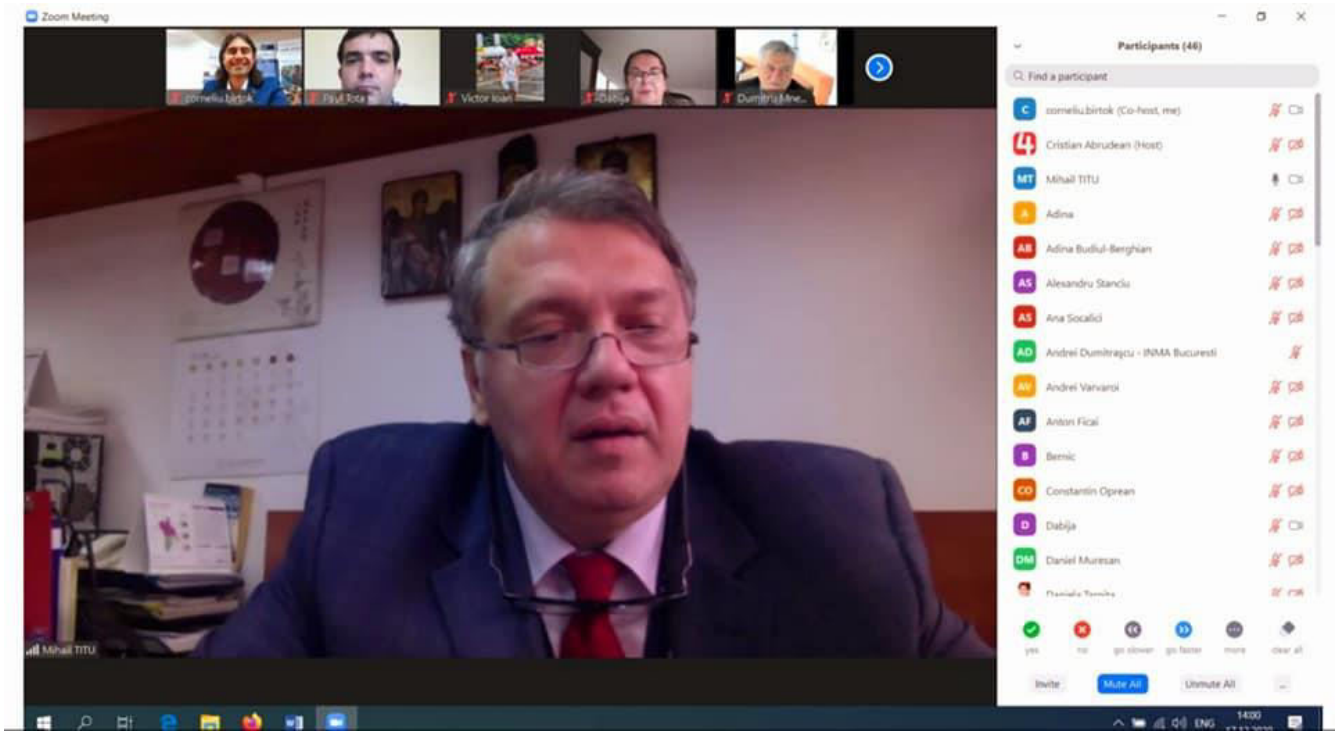
## 15-17.12.2022 – Deva, Romania


CORPUL ELECTRIC
ROBERT O. BECKER ȘI GARY SELDEN
MacBook Pro

# *InventCor 2020*

***Promo:*** *https://youtu.be/AIC1OuFVrig*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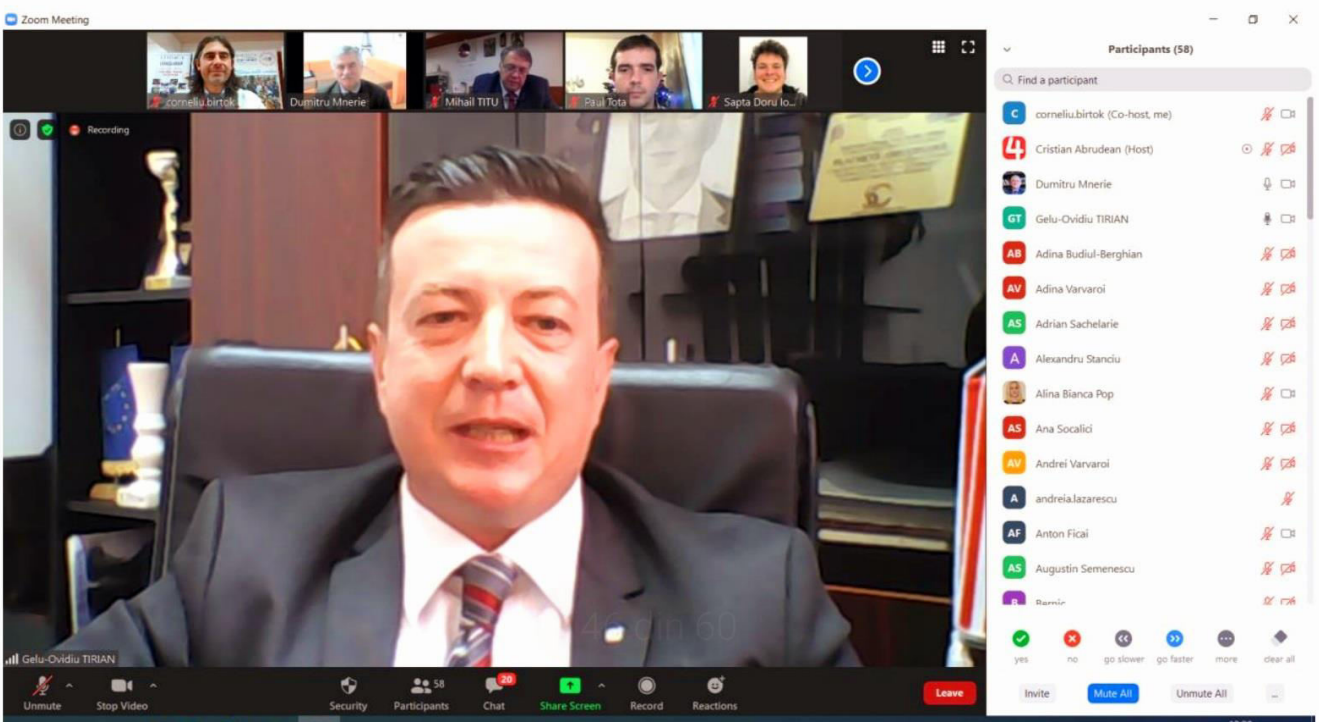
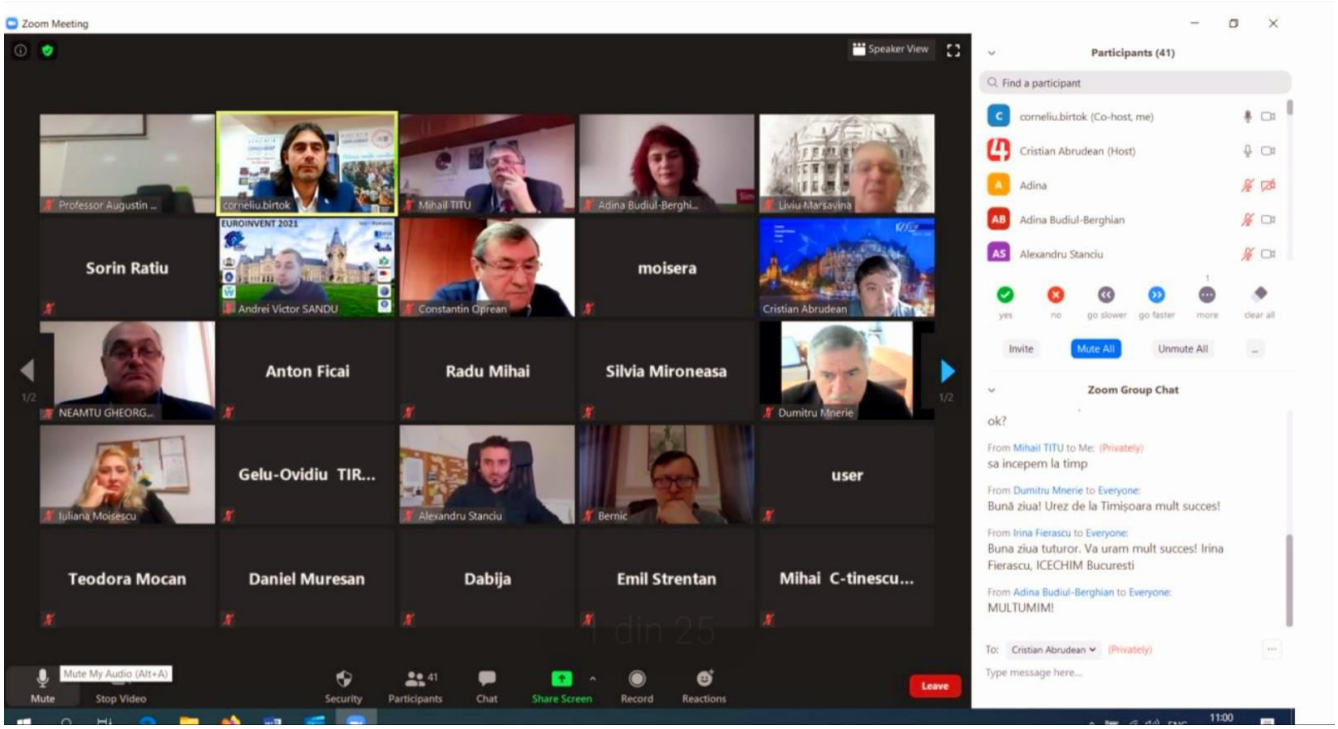
Find a participant
Mihail TITU
Invite
Mute All
Unmute All


Zoom Meeting
Participants (58)
Find a participant
Recording
Gelu-Ovidiu TIRIAN
Unmute
Stop Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave
Invite
Mute All
Unmute All


Zoom Meeting
Speaker View
Sorin Ratiu
moisera
Anton Ficai
Radu Mihai
Silvia Mironeasa
Gelu-Ovidiu TIR...
user
Teodora Mocan
Daniel Muresan
Dabija
Emil Strentan
Mihai C-tinescu...
Participants (41)
Zoom Group Chat
Mute
Stop Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave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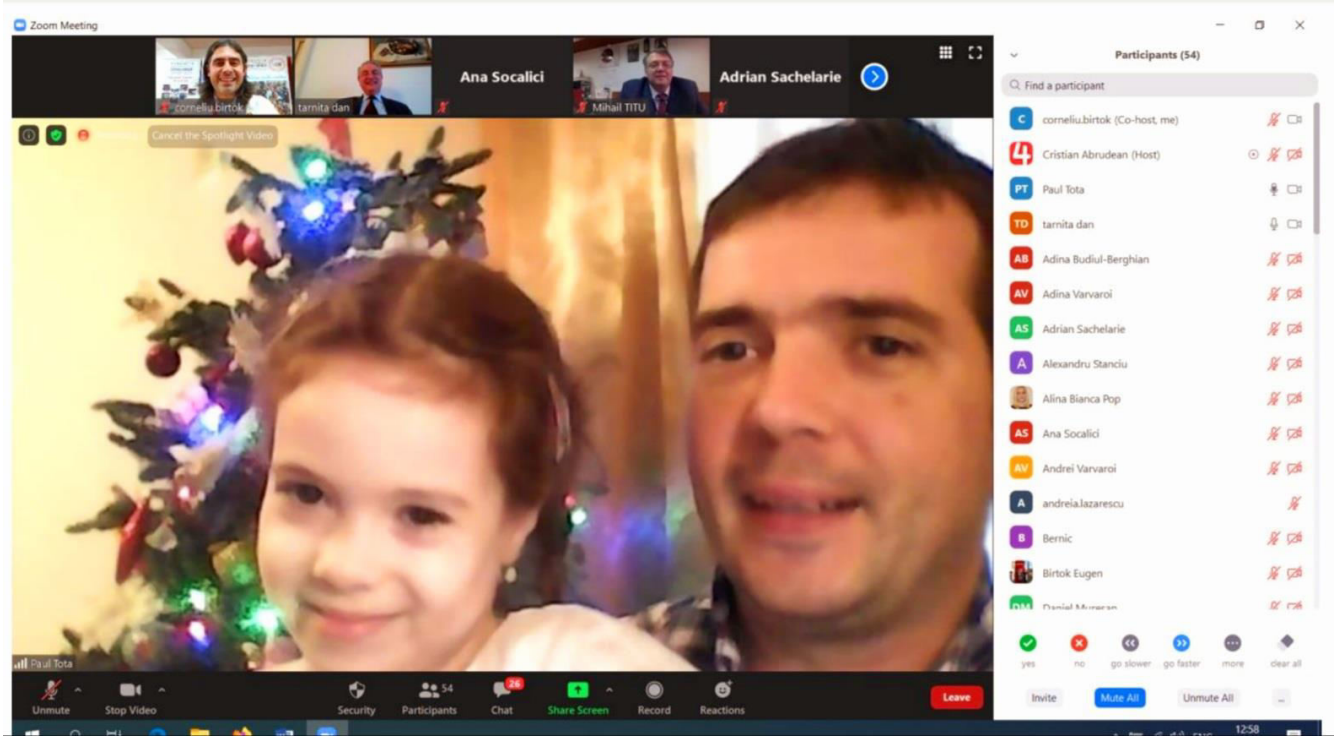
Dispersia Fluxului de Căldură
Puterea minții creative
FILTRE SUPRAASPIRANTE
INVENTCOR International Exhibition 2020
Hunedoara City Special Award
CORNELIUGROUP research-innovation association
INVENTCOR
Power of Creative Mind


Zoom Meeting
Ana Socalici
Adrian Sachelarie
Participants (54)
Find a participant
corneliu.birtok (Co-host, me)
Cristian Abrudean (Host)
Paul Tota
tarnita dan
Adina Budiul-Berghian
Adina Varvaroi
Adrian Sachelarie
Alexandru Stanciu
Alina Bianca Pop
Ana Socalici
Andrei Varvaroi
andreia.lazarescu
Bernic
Birtok Eugen
Unmute
Stop Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave
Invite
Mute All
Unmute All


Zoom Meeting
Participants (63)
Find a participant
35 din 60
Unmute
Stop Video
Security
Participants
Chat
Share Screen
Record
Reactions
Leave
Invite
Mute All
Unmute All


Zoom Meeting
Participants (61)
Find a participant
Sorin Ratiu
Unmute
Stop Video
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Participants
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Record
Reactions
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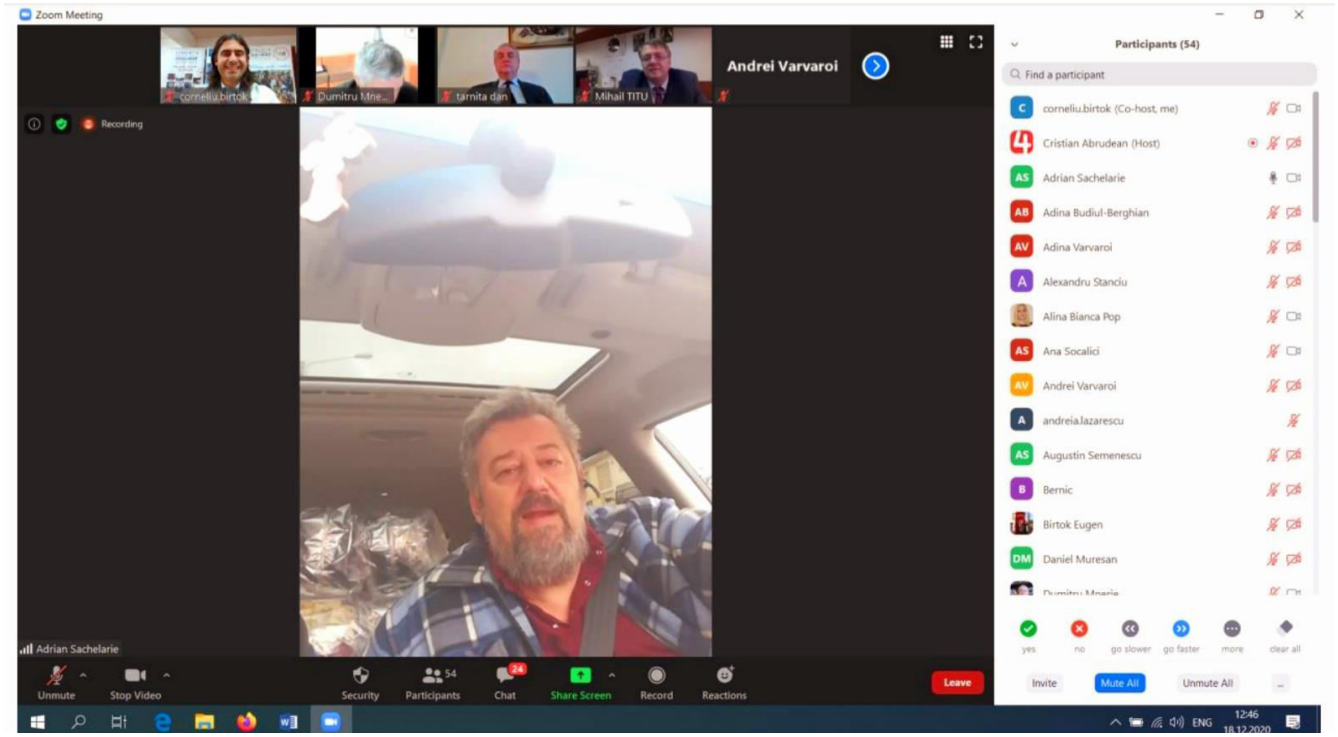
Mute All
Unmute All


Zoom Meeting
Andrei Varvaroi
Participants (54)
Find a participant
Recording
Adrian Sachelarie
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Participants
Chat
Share Screen
Record
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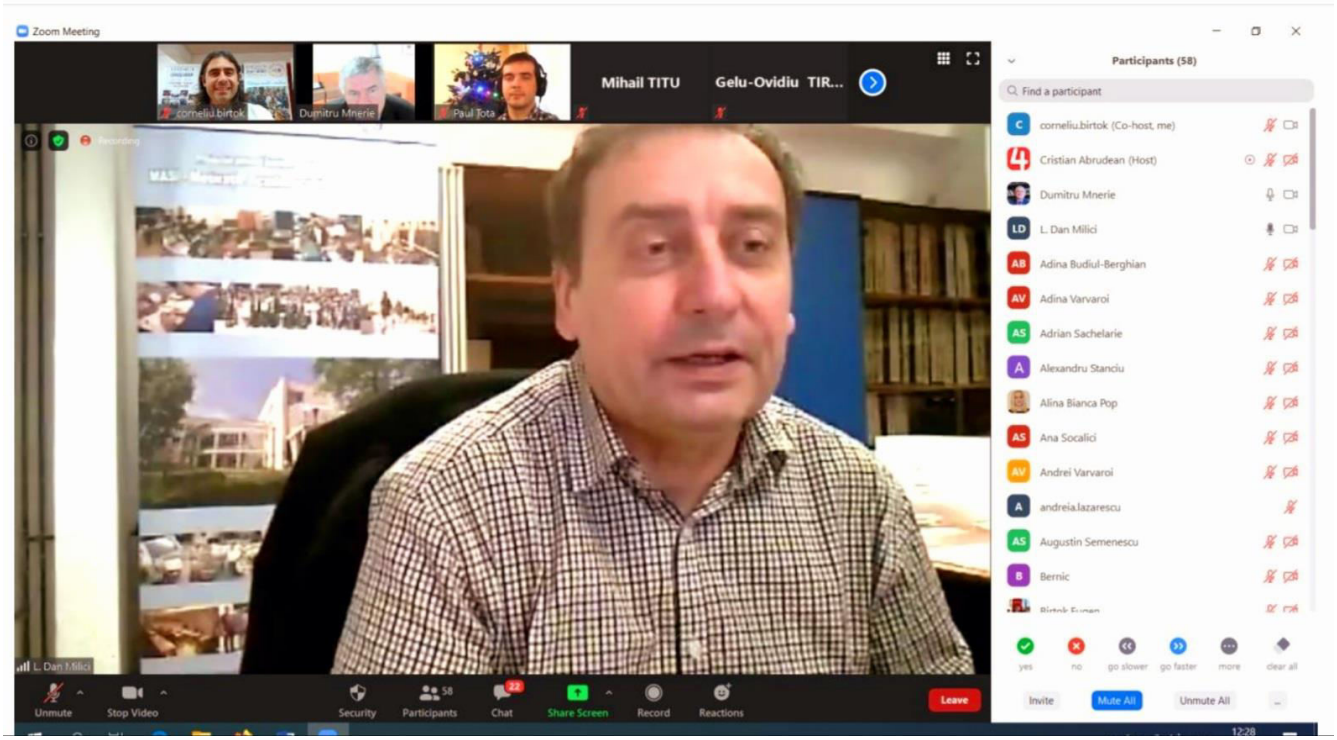
Invite
Mute All
Unmute All


Zoom Meeting
Mihail TITU
Gelu-Ovidiu TIR...
Participants (58)
Find a participant
corneliu.birtok (Co-host, me)
Cristian Abrudean (Host)
Dumitru Mnerie
L. Dan Milici
Adina Budiul-Berghian
Adina Varvaroi
Adrian Sachelarie
Alexandru Stanciu
Alina Bianca Pop
Ana Socalici
Andrei Varvaroi
andreia.lazarescu
Augustin Semenescu
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Participants
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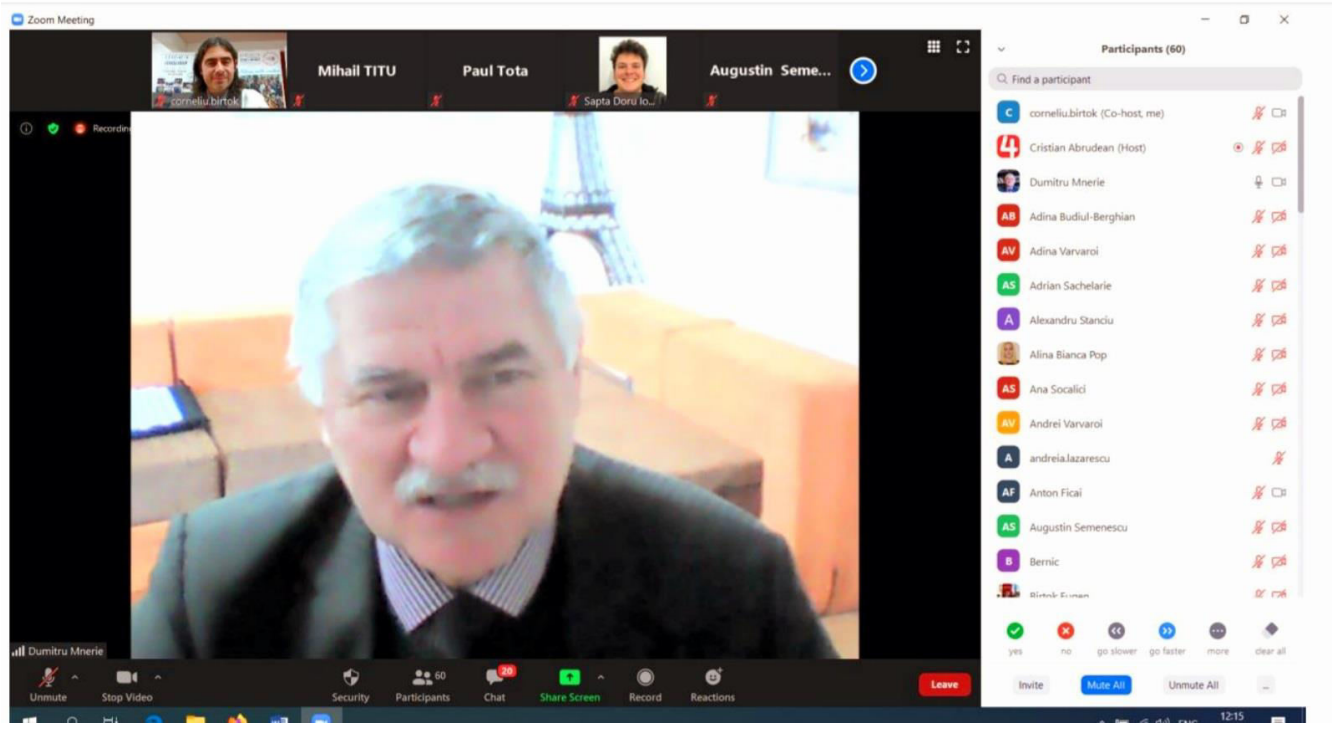
Zoom Meeting
Mihail TITU
Paul Tota
Augustin Seme...
Participants (60)
Find a participant
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Cristian Abrudean (Host)
Dumitru Mnerie
Adina Budiul-Berghian
Adina Varvaroi
Adrian Sachelarie
Alexandru Stanciu
Alina Bianca Pop
Ana Socalici
Andrei Varvaroi
andreia.lazarescu
Anton Ficai
Augustin Semenescu
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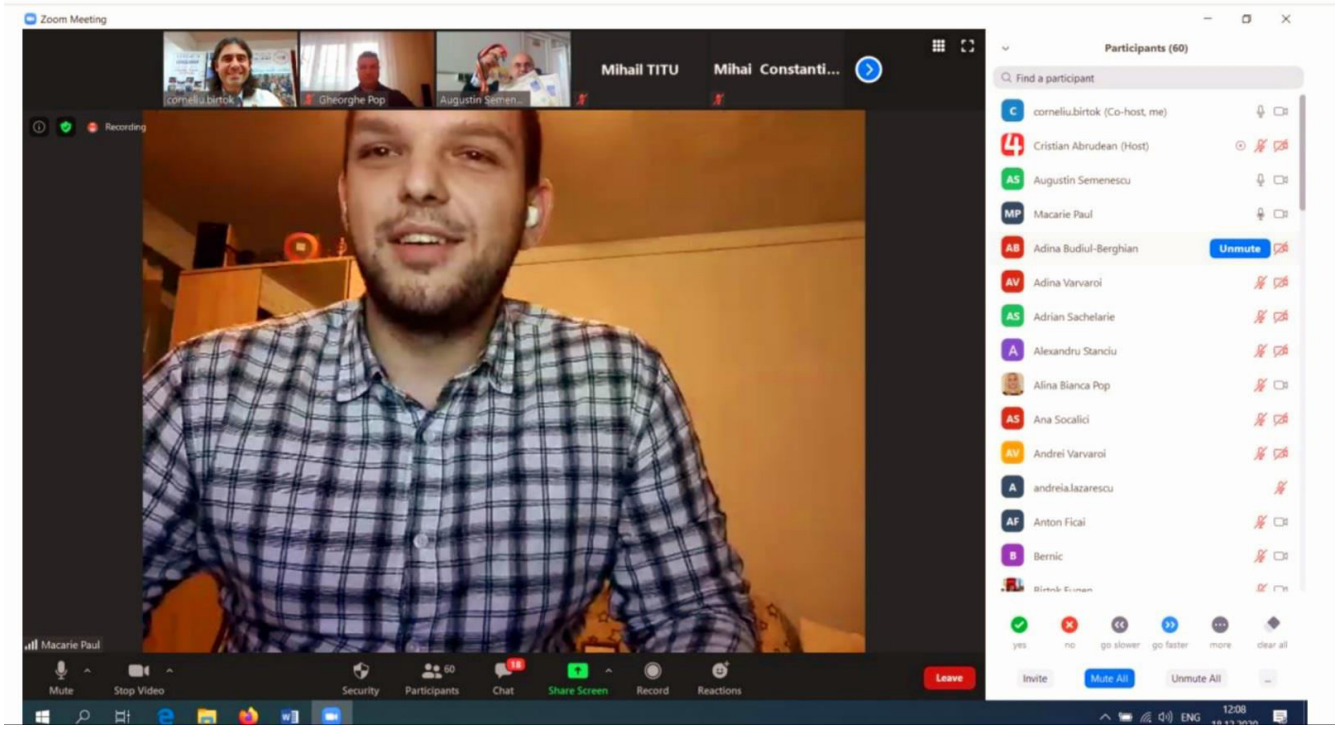
Zoom Meeting
Mihail TITU
Mihai Constanti...
Participants (60)
Find a participant
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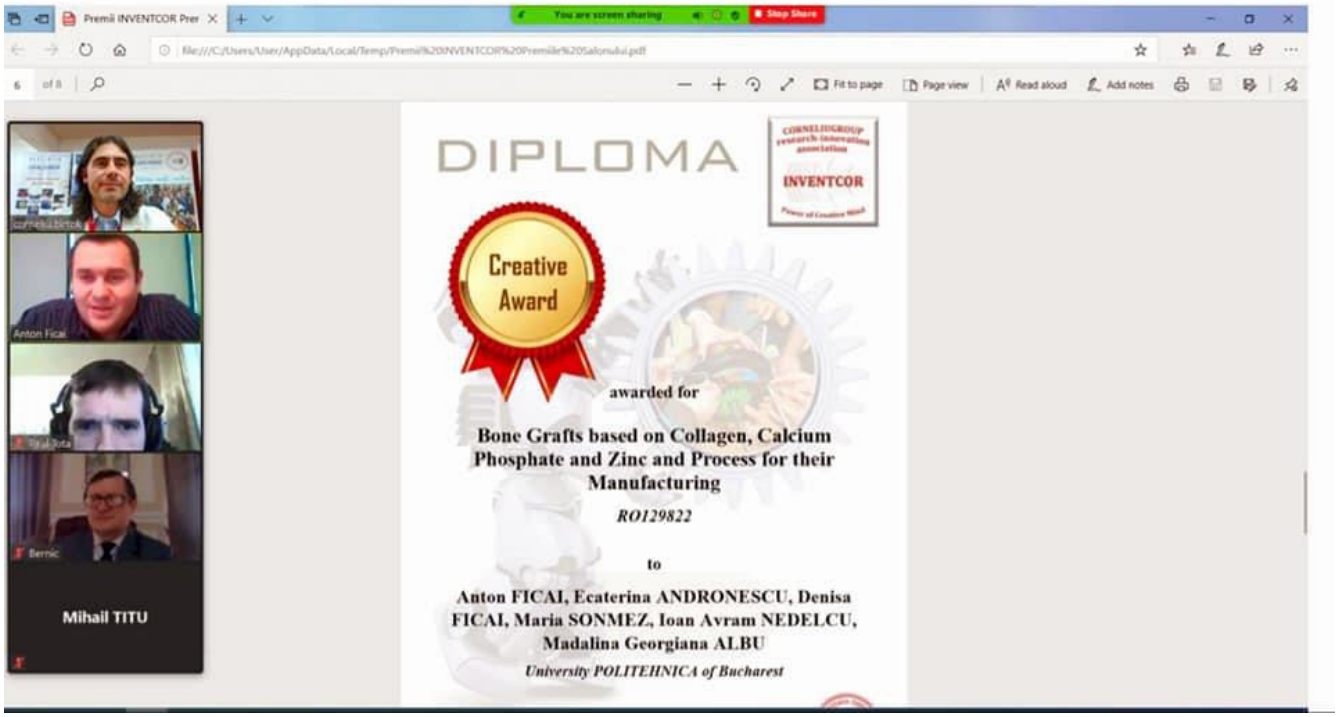
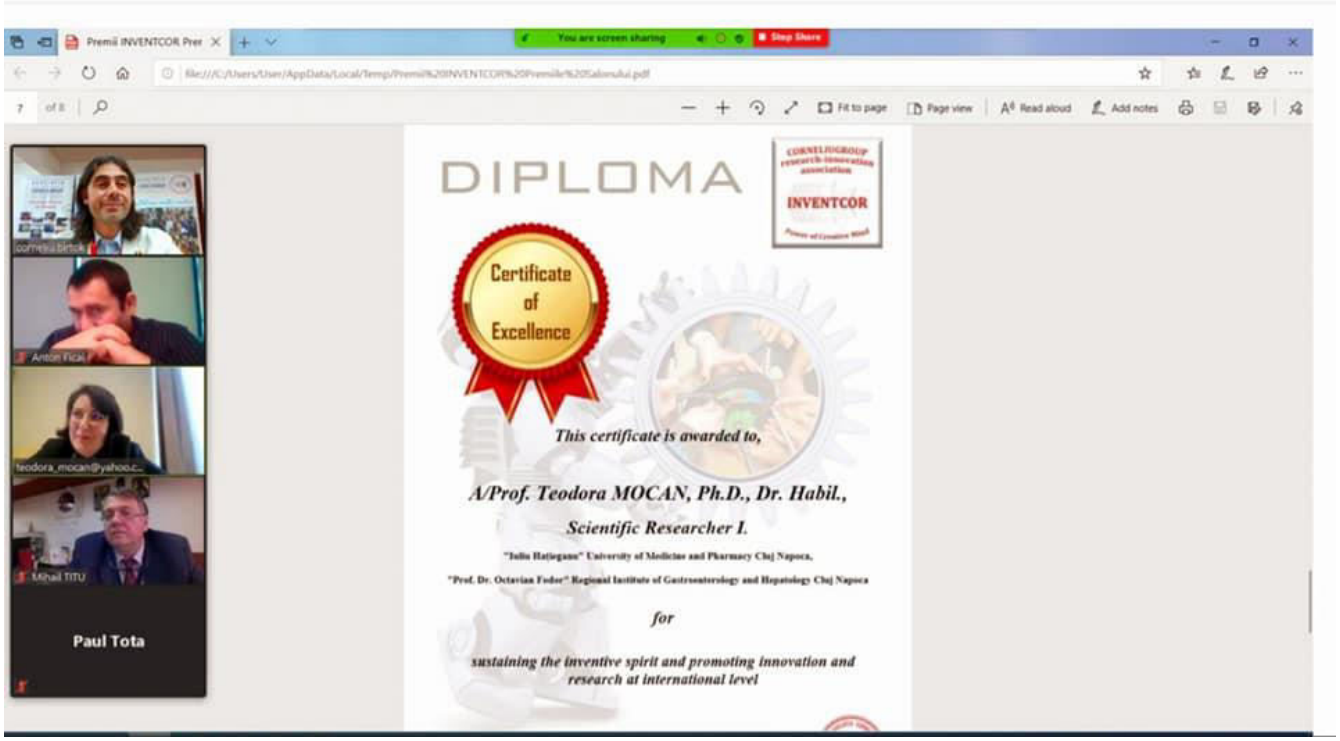
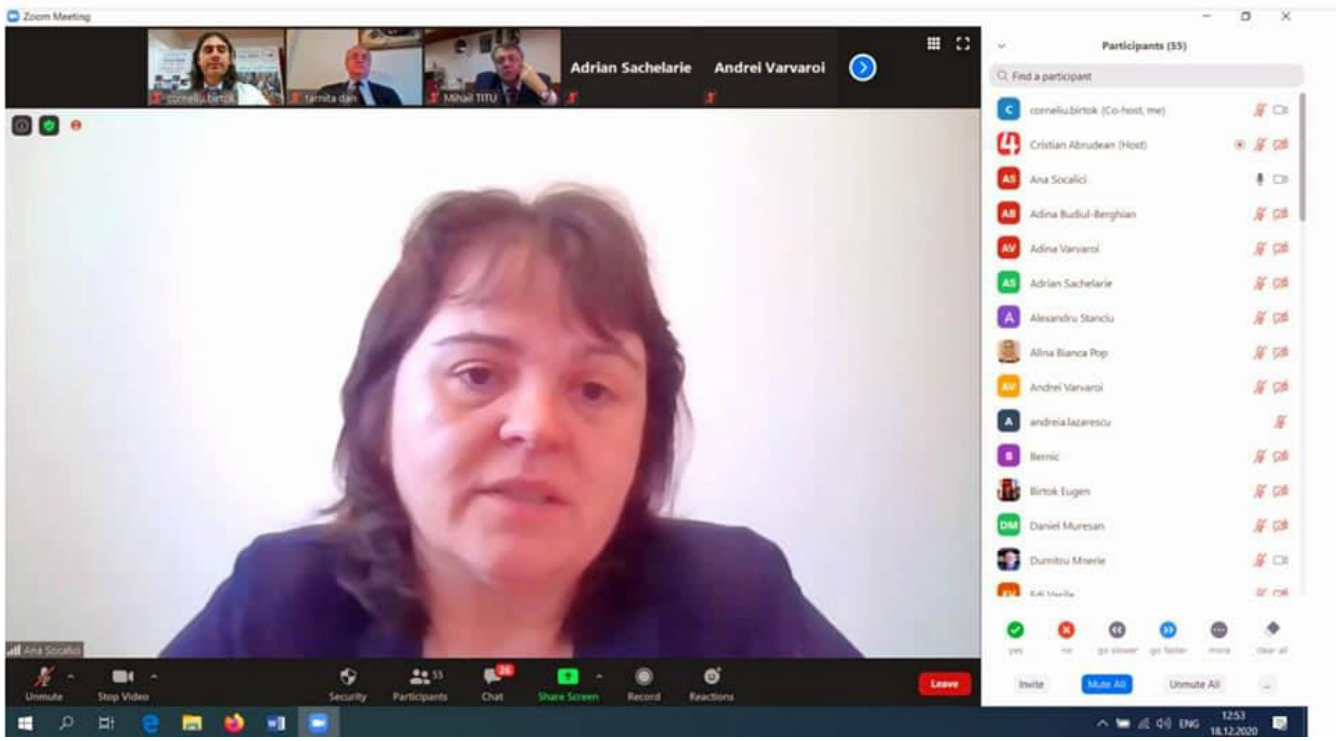
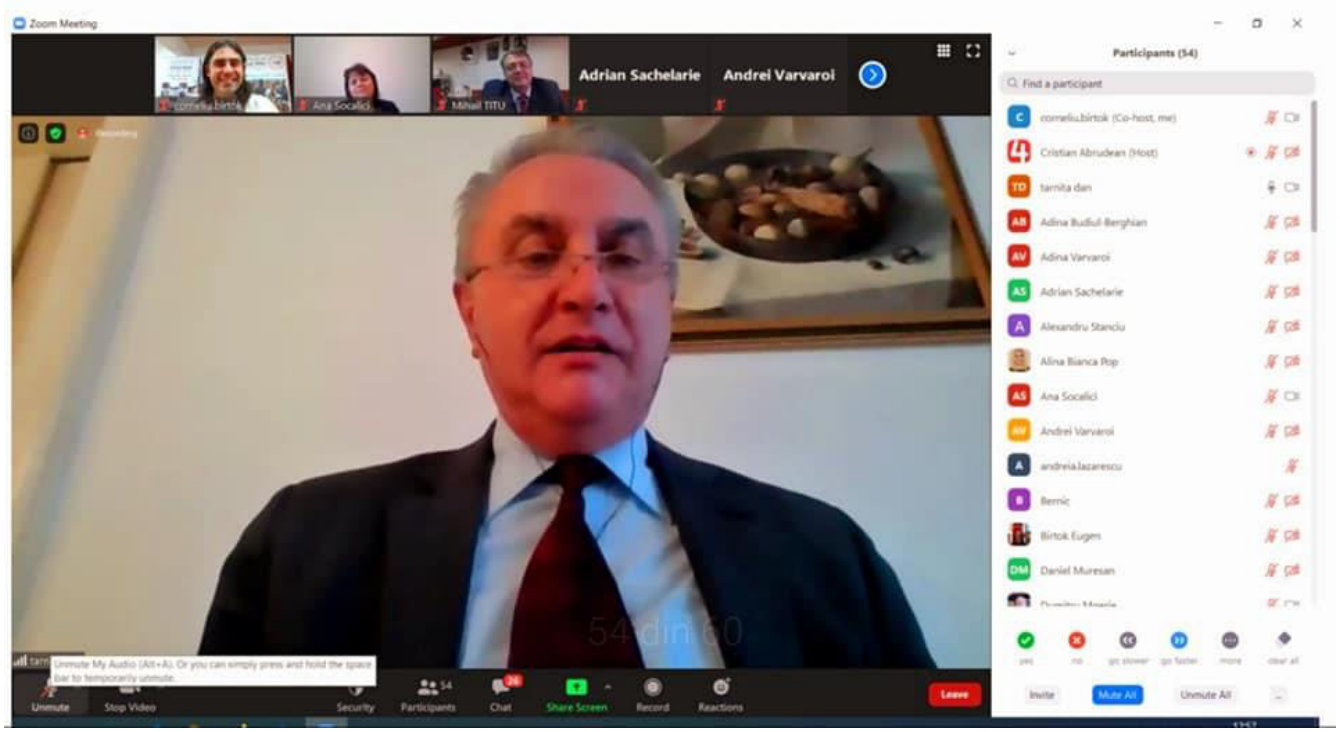

DIPLOMA
INVENTCOR
Creative Award
awarded for
Bone Grafts based on Collagen, Calcium Phosphate and Zinc and Process for their Manufacturing
RO129822
to
Anton FICAI, Ecaterina ANDRONESCU, Denisa FICAI, Maria SONMEZ, Ioan Avram NEDELCU, Madalina Georgiana ALBU
University POLITEHNICA of Bucharest
Mihail TITU


Paul Tota
DIPLOMA
INVENTCOR
Certificate of Excellence
This certificate is awarded to,
A/Prof. Teodora MOCAN, Ph.D., Dr. Habil.,
Scientific Researcher I.
"Iuliu Haţieganu" University of Medicine and Pharmacy Cluj Napoca,
"Prof. Dr. Octavian Fodor" Regional Institute of Gastroenterology and Hepatology Cluj Napoca
for
sustaining the inventive spirit and promoting innovation and research at international level


Adrian Sachelarie
Andrei Varvaroi
Participants (55)


Zoom Meeting
Adrian Sachelarie
Andrei Varvaroi
Participants (54)
Unmute
Stop Video
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Participants
Chat
Share Screen
Record
Reactions
Leave
Invite
Mute All
Unmute All


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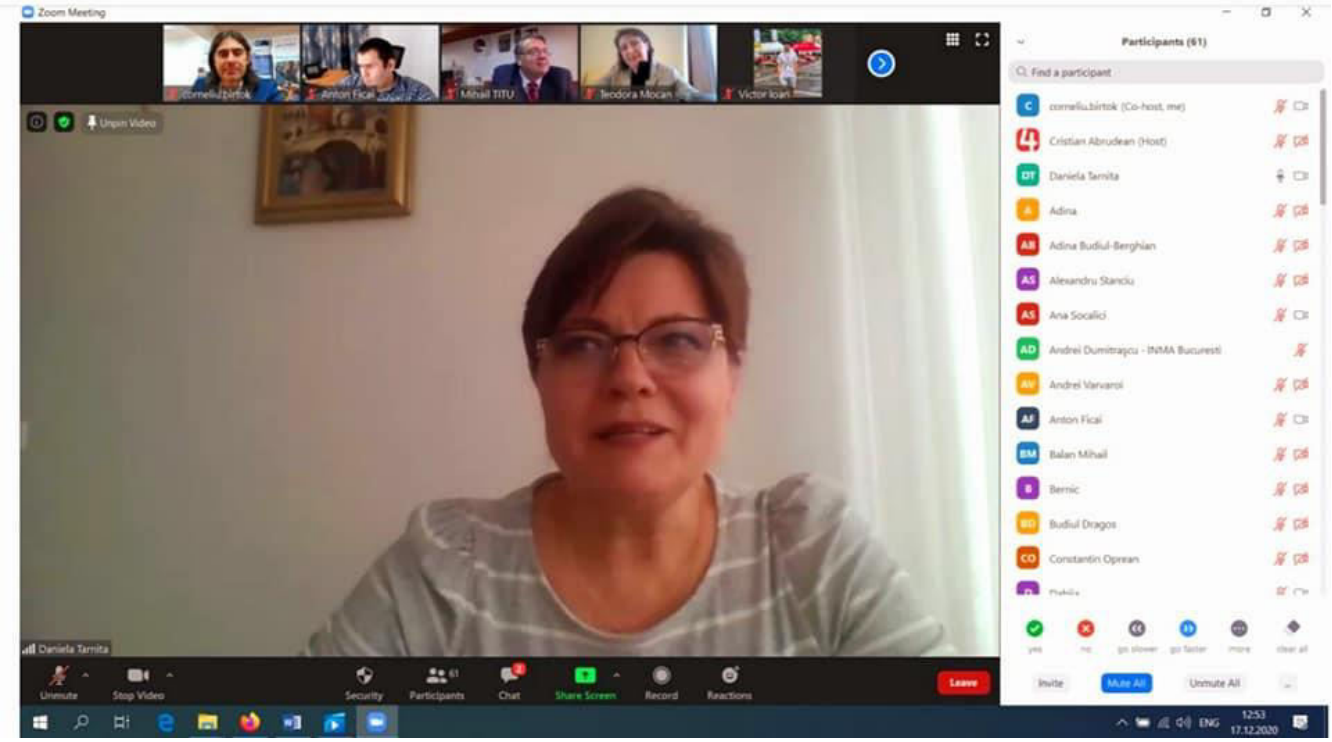
CERCETARE - INOVARE
www.corneliugroup.ro


Zoom Meeting
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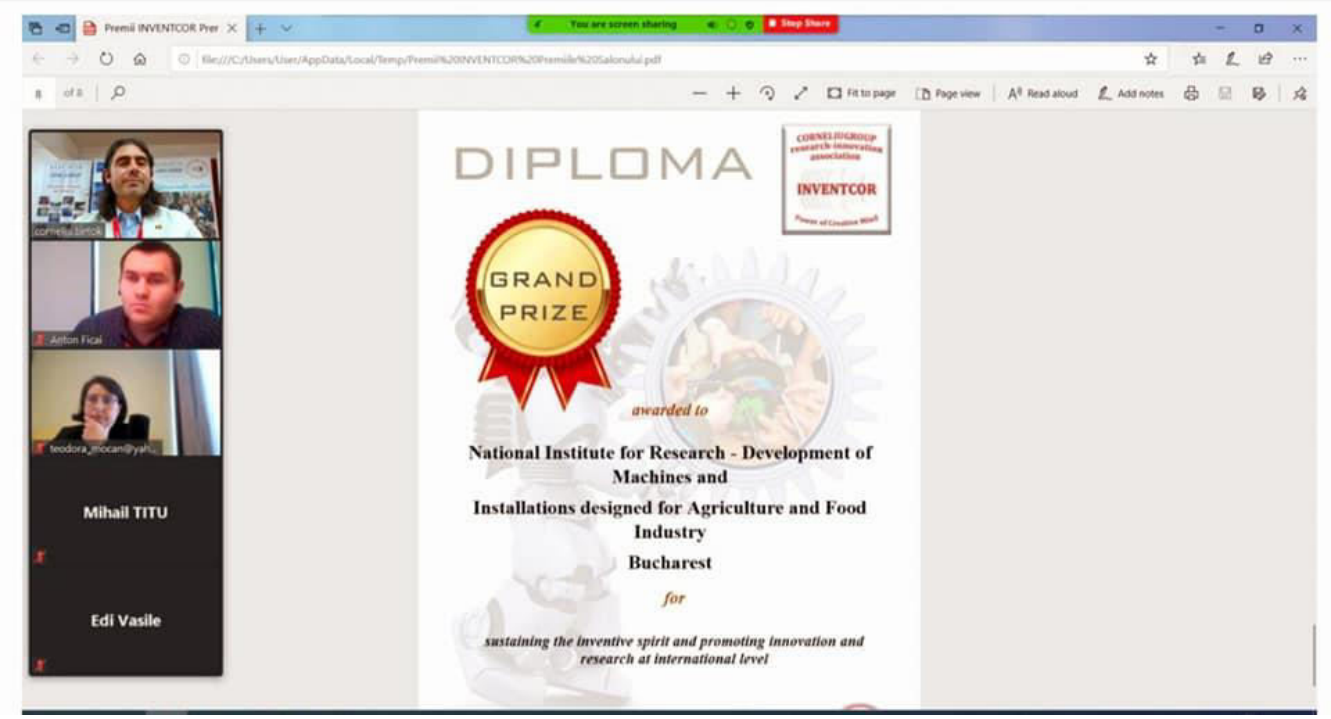
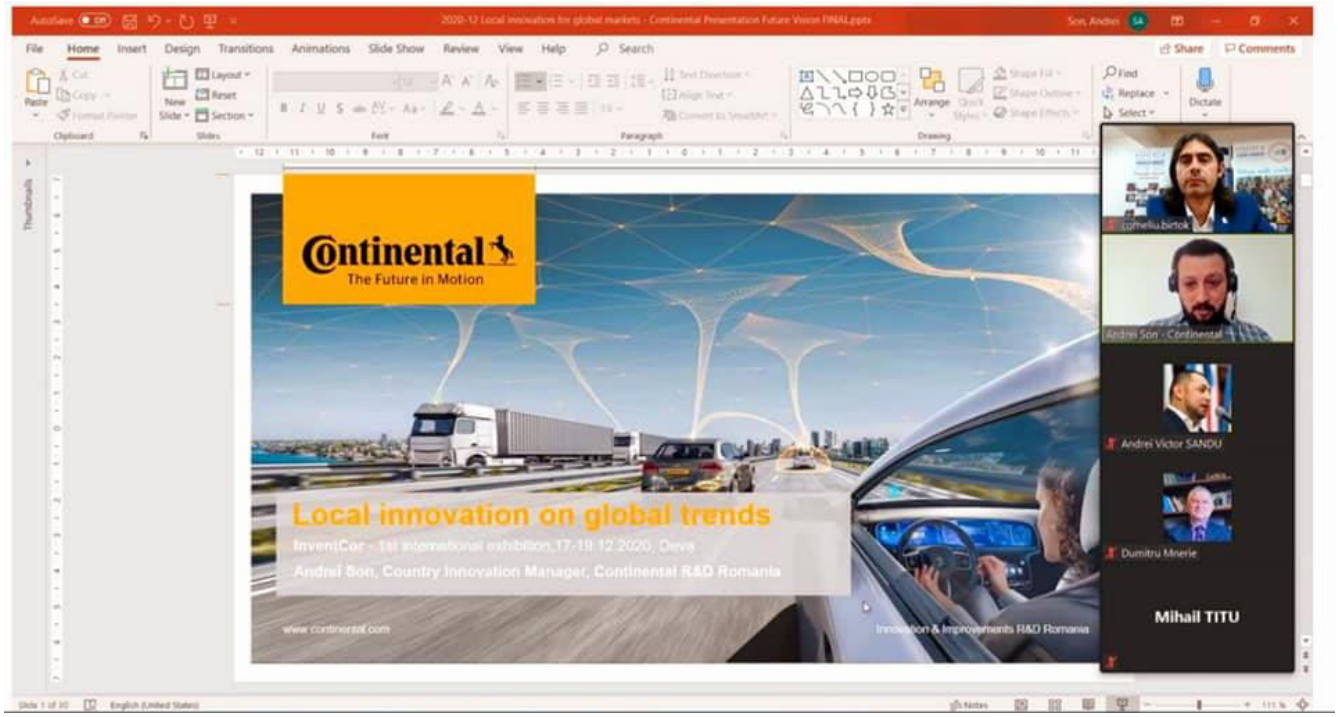
Participants
Chat
Share Screen
Record
Reactions
Leave


Mihail TITU
Edi Vasile
DIPLOMA
INVENTCOR
GRAND PRIZE
awarded to
National Institute for Research - Development of Machines and
Installations designed for Agriculture and Food Industry
Bucharest
for
sustaining the inventive spirit and promoting innovation and research at international level


Continental
The Future in Motion
Local innovation on global trends
Andrei Son, Country Innovation Manager, Continental R&D Romania
Mihail TITU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*Glimpse of 2019*

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Power of Creative Mind


FILTRE
SUPRAASPIRANTE
& S.D.T.A
Simeria 2019
Puterea minții creative
air power
by corneliu
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ASOCIATIA
CORNELIUGROUP
Puterea minții creative

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Universitatea
Politehnica
Timişoara
media

2022

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Power of Creative Mind


Puterea
minții creative
Simeria


HD 11 JDO
HD 79KDT


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CORNELIUGROUP
Puterea minții creative
air power
FACULTATEA
DE INGINERIE


ASOCIATIA
CORNELIUGROUP
Puterea minții creative
CENTRUL
SPORT SI MIȘCARE
HAND MADE


Paco's bikes
mereu atrage privirea
mulțimilor de oameni
Custom Bikes
facebook.com/Paco's Bikes
Simeria 2019
Puterea minții creative


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CORNELIUGROUP
DHS
FIM
EMBLEMA ORIGINALITĂȚII
CENTRUL CULTURAL ȘI DE CREAȚ
ASOCIAȚIA CORNELIU
Puterea minții creative
1 DECEMBRIE 2019
PERFECȚIUNEA CREAȚIEI
HAI LA JOACĂ
PITICII CREATIVI


IMPACT
CORECTITUDINE ȘI INTEGRITATE
RobomOn!


fii încăpățânat și urmează-ți visul!
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CERCETARE - INOVARE


Polytechnica University of Timisoara
FIH
Laboratorul lui


Forța lupului stă în haită
forța haitei stă în lup !
CLUB SPORTIV
LUPII
DEVA
ASOCIAȚIA
CLUB SPORTIV
LUPII DEVA


UNIVERSITATEA
Universitatea Politehnica Timişoara
FACULTATEA DE INGINERIE HUNEDOARA
Specializarea
AUTOVEHICULE RUTIERE
din cadrul
DEPARTAMENTULUI DE INGINERIE ŞI MANAGEMENT
DIM
LICEUL TEHNOLOGIC „TRANSILVANIA" DEVA
ŞCOALĂ EUROPEANĂ

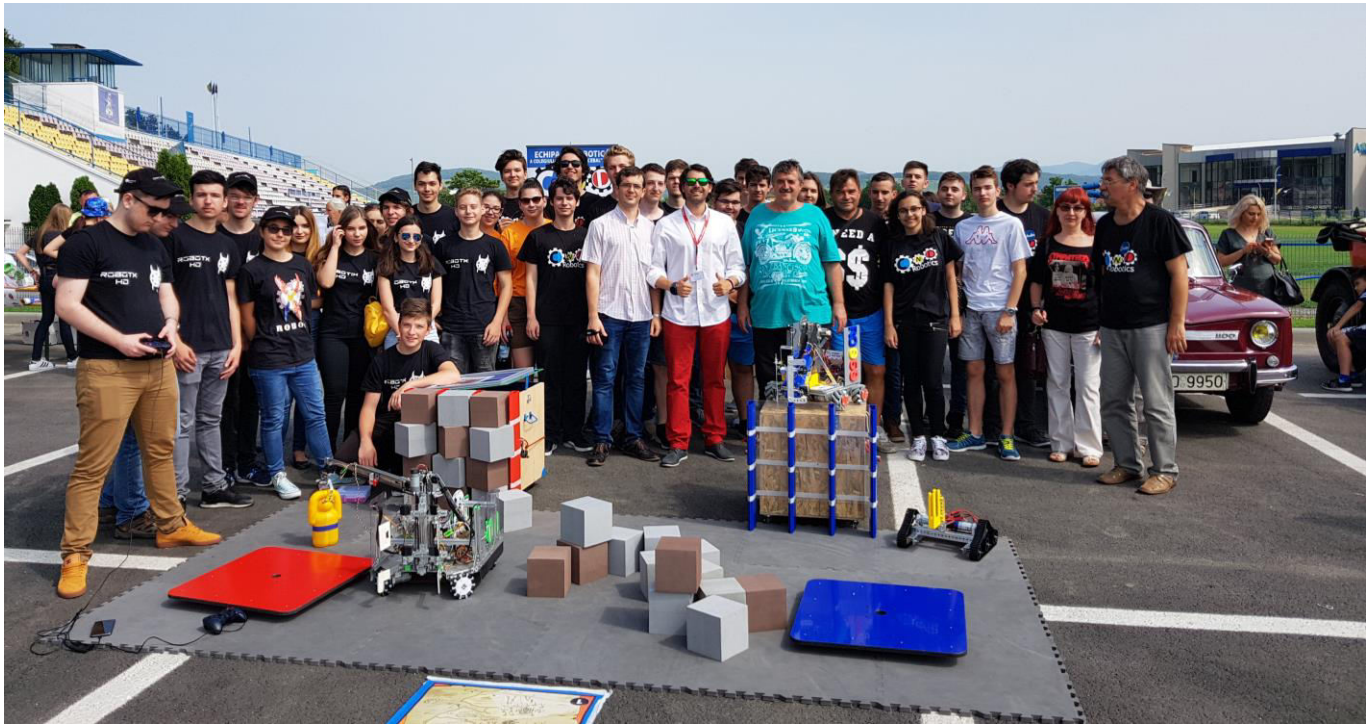

ANDR
OGDAN


ASOCIATIA
CORNELIUGROUP
Continental
Facultatea Alfe


ASOCIATIA
CORNELIUGROUP
PITICII CREATIVI
GRAFICĂ ȘI PICTURĂ
CADGET-URI ȘI EXPERIMENTE
CERCETARE ȘI INOVARE

## *2018 First*


ASOCIATIA
CORNELIUGROUP
CERCETARE - INOVARE
ASOCIATIA CORNELIUGROUP
CERCETARE - INOVARE
Puterea minții creative
Cetatea Devei 09 iunie 2018, ora 10 (parcare telecabina)
NRG
robotix
Bicicleta cu Talent
www.bicicletacutalent.ro
Classic Car Hunedoara
FIH
1970
TehnoART
Serviciul Public Administrare Cetate DEVA
air power by cornelio
www.corneliugroup.ro
AIR by CORNELIU
www.corneliugroup.ro
PRIMĂRIA MUNICIPIULUI DEVA




ECHIPA DE ROBOTICA
Robotics
facebook CNDRobotics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Viața în mișcare!
DB-10 SAH

2022

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Asociatia CORNELIUGRO
cercetare - inovare


CNS „CETATE" DEVA
STADION „CETATE"
Piticii Creativi
Puterea minții creative


HD 16 BPD
HD 01AFR

2023

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Power of Creative Mind

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Research-Innovation
Association

INVENTCOR

Power of Creative Mind

*See you next year!*

**Editor: Corneliu BIRTOK BĂNEASĂ**

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