EUROPEAN EXHIBITION OF
CREATIVITY AND INNOVATION

EURO INVENT 2011

CATALOGUE
CATALOG

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Gheorghe Asachi Technical University of Iasi

The *Gheorghe Asachi* Technical University of Iasi (TU IASI) has the oldest tradition in the engineering field of education in Romania. In 1813 the scholar Gheorghe Asachi established the first school for surveyors and civil engineers considered to be the nucleus of the technical higher education in Iasi. Currently, the *Gheorghe Asachi* Technical University of Iasi has 11 faculties and 4 departments that offer educational and doctoral programmes for more than 17000 students in 61 engineering specializations, 73 *Master of Science* programs and 10 doctoral schools.

Besides its educational mission, the *Gheorghe Asachi* Technical University of Iasi has an important research dimension, having 21 accredited centers and laboratories for scientific research. These centers activate in different fields, within national and international research grants, research contracts with industry or governmental organizations, their activities placing our university in the Romanian top of scientific research.

The constant focus on interdisciplinary research, on innovation and knowledge transfer, as well the quality of the research staff and their commitment for excellence provided a constant dynamics of research activities and the recognition and visibility of our university. The increased trend observed in the number of research contracts, published papers in peer reviewed international journals and conference proceedings, books, international co-operation grants, as well as joint Ph.D. supervision with well-known European universities contribute to the continuous appreciation of our university as a successful research and innovation institution able to provide proactive relationships with industry and public services and a contributor to local and regional development. Only in the last academic year, our university has participated in more than 350 national and international projects as well as research contracts .

Our research profile is directed towards high-tech engineering areas, which enable our research staff to have a very innovative approach towards research problems. Innovation in our university comes as sum of experience provided by our 172 of senior researchers, PhD supervisors and the enthusiasm brought by our 1512 PhD. students. This focus on scientific research in high-tech areas and cutting-edge technologies is proven by the outstanding innovation capabilities of our staff members that have produced nearly 65% of the Romanian patents in the last 10 years, which enabled our institution to win the *Creativity Trophy* issued by the National Register of Inventions and Trademarks in 2006.

Alexandru Ioan Cuza University of Iaşi

Alexandru Ioan Cuza University of Iaşi is the oldest higher education institution in Romania. Since 1860, the university has been carrying on a tradition of excellence and innovation in the fields of education and research. With over 38.000 students and 800 academic staff, the university enjoys high prestige at national and international level and cooperates with over 250 universities world-wide. Alexandru Ioan Cuza University is a member of some of the most important university networks and associations: the Coimbra Group, EUA - European University Association, Utrecht Network, International Association of Universities, University Agency of Francophony and the Network of Francophone Universities (RUFAC). These partnerships offer us the opportunity to experience changes, to have student and teacher mobilities and joint academic, research and strategy programmes.

Alexandru Ioan Cuza University became the first student-centered university in Romania, once the Bologna Process was implemented. We believe in the power of individual choice and customized education. Thus, we became the first Romanian university to offer students the opportunity to choose both a major and a minor field of study, in a combination at their choice, that best suits their career goals.

Research at our university is top level. In 2008, for the third year in a row, Alexandru Ioan Cuza University was placed first in the national research ranking compiled on the basis of Shanghai criteria. Our teachers are involved in over 400 national and international research projects, with the logistic support of 24 research centres. Striving for excellence, the university takes unique initiatives to stimulate research quality, to encourage dynamic and creative education and to involve its best students in academic life.

Today, with its fifteen faculties, Alexandru Ioan Cuza University offers to all inquisitive young minds a large diversity of academic programmes which are aimed to open the way towards their personal fulfilment and social recognition. In a world characterized by rapid and profound changes, where knowledge is the most valuable asset, Alexandru Ioan Cuza University aims to strengthen the flexibility of learning, to create opportunities for the intellectual and professional development of its students, to assist quality research and to contribute to the society's cultural and economic growth.

ROMANIAN INVENTORS FORUM

Romanian Inventors Forum (FIR), as a professional association of dialog and representation, has the purpose to support, stimulate, develop and valorize the scientifically, technically and artistically creativity. Under the aegis of FIR, Romanian Inventors have participated at more than 50 World Invention Exhibitions, where their creations have been awarded with orders, prizes and medals. The performance of Romanian inventics is renowned in the whole world, that is the reason why FIR became member in different international clubs, associations and federations, with special contributions.

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FORUMUL INVENTATORILOR ROMÂNI

Forumul Inventatorilor Români (FIR), este o asociație profesională de dialog şi reprezentare a inventicii româneşti în context internațional, care are drept scop sprijinirea, stimularea, dezvoltarea si valorificarea activităților de creatie stiintifică, tehnică şi artistică. Sub egida FIR, inventatorii români au participat la peste 50 de saloane mondiale de invenții, creațiile lor fiind apreciate cu numeroase ordine, premii şi medalii. Performanța inventicii româneşti este recunoscută în întreaga lume, motiv pentru care FIR a devenit membru a diverselor cluburi, asociații şi federații internaționale de profil, unde are contribuții deosebite.

EUROPE DIRECT IAŞI

Association for Ecology and Sustainable Development is the host for Information Centre of European Commission "EUROPE DIRECT" Iaşi. The EUROPE DIRECT Centre Iaşi assures the European information transfer to Romanian citizens and the feedback to the E.C., enhancing dialog between European institutions and the common citizen concerning to all European policies and the personal expectations.

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EUROPE DIRECT IAŞI

Asociația pentru Ecologie şi Dezvoltare Durabilă este structura gazdă a Centrului de Informare al Comisiei Europene „EUROPE DIRECT" Iaşi. Acesta asigură transferul informației către cetățenii români şi feed-back-ul către Comisie, facilitând dialogul între instituțiile europene şi cetățeanul de rând, referitoare la toate problemele privind politicile europene şi aşteptările individuale.

THE ORGANIZERS

„GHEORGHE ASACHI" TECHNICAL UNIVERSITY OF IASI
Faculty of Chemical Engineering and Environmental Protection

"Gheorghe Asachi" University of Iasi is an excellent choice for the highschool graduates, who wish to embrace a carrier in the attractive field of engineering. The eleven faculties of the university are well equipped and have renowned specialists.

The Faculty of Chemical Engineering and Environmental Protection at the "Gheorghe Asachi" Technical University of Iasi has the mission to train specialists for the chemical and environmental engineering fields, through a 4-year programme (B.Sc.), Master Courses and Ph.D. Programmes. Also, our faculty is involved in the scientific research programmes in the chemical and biochemical engineering, environmental engineering and related fields, as well as in life-long education programmes for professionals that wish to extend their expertise. Chemical engineering education in the faculty brings a distinctive note by the value of its academic staff. Besides the formative activity, research in various fields, focused to multi-disciplinary national and international co-operation is highly valued.

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UNIVERSITATEA TEHNICĂ "GHEORGHE ASACHI" IAŞI
Facultatea de Inginerie Chimica si Protecția Mediului

Universitatea Tehnica din Iasi este o alegere excelenta pentru absolventii de liceu care s-au hotarat sa imbratiseze o cariera in domeniul provocator al ingineriei. Cele unsprezece facultati ale universitatii sunt dotate cu laboratoare si echipamente de ultima ora, unde isi desfasoara activitatea specialisti recunoscuti pe plan european si international.

Facultatea de Inginerie Chimică şi Protecția Mediului din cadrul Universității Tehnice "Gh. Asachi" din Iaşi, are ca misiune pregătirea specialiştilor pentru domeniul ingineriei chimice şi a mediului, prin programe de licență (4 ani), masterat şi doctorat. De asemenea, facultatea este implicată în proiecte de cercetare în domeniul ingineriei chimice şi biochimice, ingineriei de mediu şi domeniile conexe, precum şi în programe de perfecționare pentru specialiştii. Valoarea personalul academic din cadrul facultății aduce o notă distinctivă predării ingineriei chimice. Pe lângă activitatea de formare şi de cercetare în diverse domenii de activitate, apreciabile sunt şi cooperările multi-disciplinare naționale şi internaționale.

THE ORGANIZERS

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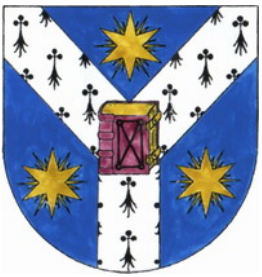
The Alexandru Ioan Cuza University of Iași is the oldest higher education institution in Romania. Since 1860, the university has been carrying on a tradition of excellence and innovation in the fields of education and research. With over 38.000 students and 800 academic staff, the university enjoys a high prestige at national and international level and cooperates with over 250 universities world-wide. The Alexandru Ioan Cuza University became the first student-centered university in Romania, once the Bologna Process was put into practice. Research at our university is top level. For the second year in a row, the University is placed first in the national research ranking. Striving for excellence, the university takes unique initiatives to stimulate research quality, to encourage dynamic and creative education and to attract the best students to academic life.



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Universitatea "Alexandru Ioan Cuza" este cea mai veche instituție de învățământ superior din România continuând, din anul 1860, o tradiție a excelenței şi inovației în educație şi cercetare. Cu peste 38.000 de studenți şi 800 de cadre didactice, universitatea se bucură de un important prestigiu la nivel național şi internațional, având colaborări cu peste 250 de universități din străinătate. Universitatea "Alexandru Ioan Cuza" este membră a unora dintre cele mai importante asociații şi rețele universitare: Grupul Coimbra, EUA - Asociația Europeană a Universităților, Rețeaua Utrecht, IAU - Asociația Internațională a Universităților, AUF - Agenția Universitară a Francofoniei şi RUFAC - Rețeaua Universităților Francofone. Acestea permit schimbul de experiență, mobilități ale studenților şi profesorilor şi realizarea în comun a unor programe academice, de cercetare sau strategice.

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Prof. PhD. Horia Neculai TEODORESCU

PROGRAM EUROINVENT 2011

DAY 1 – THURSDAY MAY 12th	
8^{00}	Participants arrival
11^{00}	Opening Ceremony Welcoming Speeches Opening of National salon of Technical and Scientifical Books
13^{30}	Jury Evaluation
14^{00}	Media Interviews
16^{45}	End of Exhibition Day
17^{00}	European Visual Art Exhibition Opening - Muzeul Unirii Iasi

DAY 2 – FRYDAY MAY 13th	
10^{00}	Jury Evaluation
10^{30}	**WORKSHOP** – Romanian Creativity in European Context
12^{00}	Delegation presentation
16^{00}	**Scientific Book Salon** Award Ceremony
16^{30}	Jury Final Decision
17^{00}	End of Exhibition Day
18^{00}	Cocktail

DAY 3 - SATURDAY MAY 14th	
10^{00}	Exhibition closure
12^{00}	**EUROINVENT Award Ceremony**

AWARDS LIST

EUROINVENT Great Prize
Prize of Europe Direct
Prize of FIR
Prize of UTI
Prize for Green Environment
Prize for the Youngest Inventor
Prize for the Woman Inventor
Prize for the Oldest Inventor
Prize of AGEPI
Leonardo da Vinci Order
Aurel Vlaicu Order
Awards of the Moldavian Delegation
Awards of the Iranian Delegation
Awards of Croatian Delegation
Awards of Ukrainean Delegation
EUROINVENT Gold Medal
EUROINVENT Silver Medal
EUROINVENT Bronze Medal
EUROINVENT Diploma

5th - 8th OCTOBER 2011
Alexandra Palace – London

http://www.britishinventionshow.com/

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QUARTZ MATRIX

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Prin **experienta** acumulata in 17 ani de activitate, Departamentul de Cercetare-Dezvoltare al Quartz Matrix a dezvoltat **solutii si produse proprii**:

- **ProLang® -** laborator fonetic digital
- **STS** - sistem de traducere simultana
- **E-Net® -** solutie de management energetic si al utilitatilor
- **AirOpTek -** sistem de monitorizare si masurare a aerului comprimat
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- **DigiCheck® -** solutie de monitorizare a parametrilor de mediu
- **DigiWeight® -** solutie destinata platformelor de cantarire electronica
- **AirCheck® -** solutie de monitorizare a temperaturii si umiditatii aerului
- **AirDataSMS®** - solutie de securitate a centrelor de date (camera serverelor)
- **TCheck® -** solutie de masurare si inregistrare a temperaturilor

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QUARTZ MATRIX

experience - innovation - solutions - added value

Research & Development

"We are using **creativity** and material resources for developing **innovative technologies** for our customers. Combining electronics, communications and software technologies, we offer our partners customized solutions with a **real added value**". (Mihai Suchar – General Manager)

With **17 years of experience**, our Research & Development Department has developed solutions and equipments:

- **ProLang®** - digital phonetic lab
- **STS** - simultaneous translation system
- **E-Net** - energy and utilities management solution
- **AirOpTek** - compressed air monitoring and measuring system
- **DigiTrafic®** - people counting solution
- **DigiCheck®** - environmental parameters monitoring system
- **DigiWeight®** - electronic weighing platform system
- **AirCheck®** - air temperature and humidity monitoring solution
- **AirDataSMS** - datacenter information security solution
- **TCheck®** - temperature measuring and registration system

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INTERNATIONAL JURY
JURIUL INTERNAȚIONAL

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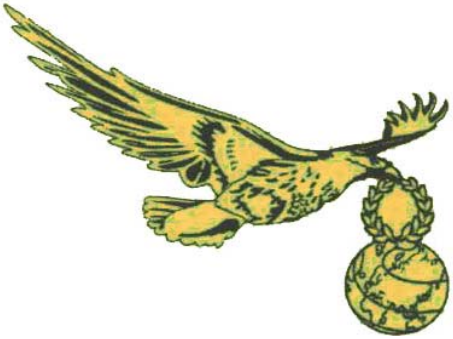
Seventh Edition of

International Salon of Inventions and New Technologies

"New Time"

(**Sevastopol, Ukraine**)

22-24 September 2011



organized by

Centre "Ayumel" LTD (Sevastopol)
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Description:

Main in Ukraine - Annual International Salon of Inventions and New Technologies. Participation of delegations and inventors from more than 28 countries. Annual International Contest of Youth Innovations and Works. Support in organization business-contacts, organization of innovative projects, exhibitions, conferences, seminars, presentations on innovative activity, theory and technologies of creativity and harmonization of life, etc.

We invite you to participate in 7 International Salon of Inventions and New Technologies «New Time» September, 22-24 (Sevastopol, Ukraine) 2011 and in 6 International Contest of Youth Innovations and Works «New Time».

PREAMBLE

The Inventions' exhibitions and shows, national or international ones, represent one of the exogenous determining factors, with multiple effects on the creative process. The system is one of the most encouraging, an interactive manner to disseminate inventions, a competitive background generating innovative ideas, while as an evaluative scientometric system, allow attracting the potential applicants or inventions' owners. It is the best medium for negotiating, conveying or transferring inventions, the place where the complete new results are exhibited.

The past 20 years experience, a time in which many Romanian inventors took their new releases in international exhibitions and were rewarded with numerous medals, orders, distinctions and diplomas, situated each time Romania, in unofficial statistics, on the first places. The honours list of the Romanian inventions create a paradoxal result of the two very close fields, the technological or applied research and on the other hand the fundamental or scientifically research. If the scientific output, represented by papers published in ISI acknowledged journals, situate Romania dragging behind the second league, in compensation, the patented awarded inventions turn it in one of first countries. So much more we should focus especially on the organizing of this kind of shows which offer real opportunities to many inventors to see their dreams come true by putting their results into a competitive-interactive system of evaluation.

Interdisciplinarity of inventics as a science is approached today in a connected, integrated way (education-research-production), with both educative and research functions, carrying great attractivity for the young generation and increasing standards both for inventors and for their products. In this respect, it is necessary to pay a special attention to the inventics schools, as they have, beside the role to form characters, professions, as well as vocations and talents, the mission to stimulate the technical creativity. We should underline the fact that after

1990 we noticed a slight lowering of the Iaşi inventics school contribution in its aim to form young inventors. Meetings and workshops in the inventics exhibitions should put light on and find solutions to turn the inventics schools in institutions and to improving and harmonizing the laws regarding the intellectual propriety and the industrial one.

Another serious, upsetting and alarming aspect which I want to put light on is the fact that about 60 to 70% of the Romanian specialists with international output accepted to work abroad, where they are appreciated and stimulated according to their value. We should as well attract them and offer the opportunity to revaluate them selves at home and participate to such representative competitions.

A peculiar notice is the fact that many Romanian inventors of success, internationally acknowledged, are invited in organizing committees, in international juries and are active members or founders of associations or professional clubs. The Romanian delegations created a tradition in the international exhibitions, to organize a Romanian event, the so-called "The Romanian Inventors Day", where they present in a festive atmosphere their inventions, their contributions and offer diplomas and small gifts to the hosts and the other participants.

This third edition of EUROINVENT sent invitations to inventors associations from many countries, as United Kingdom, Spain, Croatia, Poland, Republic of Iran, Ukraine, Russian Federation, Republic of Moldova. A big number of institutions and individual inventors are participating from Romania, a remarkable fact being to have here many young inventors (from schools or universities) as well as older inventors. This show is exhibiting more than 200 inventions.

With pleasure and gratitude, acknowledgements to all the persons, institutions and organizations who participate to EUROINVENT, to the partners, Romanian Inventors Forum, EUROPE-DIRECT Center, "Gheorghe Asachi" Technical University of Iaşi and "Alexandru Ioan Cuza" University of Iasi for all their support and efforts to organize the events".

Prof. Ion SANDU – President of Romanian Inventors Forum

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Invention no:	4.11, 4.12, 4.13, 4.14

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INVENTIONS CLASSIFICATION

1	Environment - Pollution Control
2	Energy and sustainable development
3	Agriculture and Food Industry
4	Medicine – Health Care – Cosmetics
5	Industrial and laboratory equipments
6	Mechanical Engineering – Metallurgy
7	Buildings and Materials
8	Aviation, car industry and transportation
9	Chemical and Textile Industry
10	Information Technology and Communication
11	Printing and advertising
12	Safety, protection and rescue of people
13	Sports, Games and Leisure
14	Other


EURO
INVENT

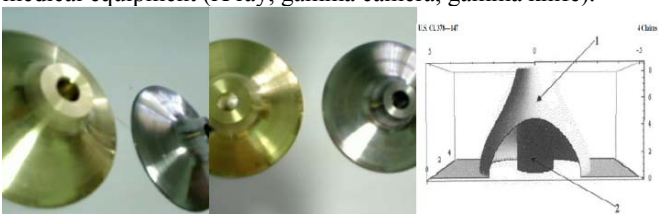
CLASS 1.

Environment - Pollution Control

1.1.

Title	**Different agro-industrial wastes as new materials with sorbtive properties from removal the textile dyes from industrial waste water**
Authors	Daniela SUTEU, Carmen ZAHARIA
Institution	**"Gh.Asachi" Technical University of Iasi, Faculty of Chemical Engineering and Environment Protection**
Patent no.	**OSIM ref no. 488/02.11.2010:**
Description	The proposed paper presents new materials with high adsorptive properties prepared from different types of agro-industrial wastes, having predominant ligno-cellulose composition, proposed as sorbents into a primary technological step based on adsorption of a treatment process applied for some coloured industrial effluents. It is considered the adsorption as a basic technological step followed by separation of solid/liquid (S/L) phases by sedimentation and/or filtration, together with the treatment and previous valorisation of separated phases. The proposed materials are components of the category of agro-industrial wastes or by-products: lignin, cello-lignin, peat, sawdust, sun flower seed shells and corn cob. The tested coloured effluents were presented variable loads of textile dyes (Red Briliant HE-3B, Orange 16, Rodamine B, Methylene Blue, Crystal Violet) (i.e. 24 – 200 mg/L dye), and the treated effluent can be recycled or discharged in different receiving basins with respecting of maximum admissible limits from the specific environmental legislation. The efficiency of dyes removal from the tested industrial effluents after the technological step based on adsorption and separation of solid phase was variable between 42 - 99 % function of the tested ligno-cellulose material type, characteristics of the industrial effluent and operational conditions.

1.2.

Title	**Radiation Collimator**
Authors	Horia Mihail TEODORESCU
Institution	-
Patent no.	**7,822,181, USA**
Description	A radiation collimator for use in either radiation-emitting devices (e.g., radiation therapy) or radiation-sensing imagery devices (i.e., gamma/X-ray cameras) is disclosed. The collimator's interior surface is basically a cylinder or a truncated cone, whereas its exterior shape is generated by the revolution of the graph of a function about the cylinder's symmetry axis, that function being determined such that the attenuation in the center of the sensor is constant as seen from any direction. The collimator is a body of revolution. The said collimator improves collimation and image resolution when compared to cylindrical, pinhole, laminar, or to other art collimators. **Applications:** Radiation detectors, Environment monitoring, medical equipment (X ray, gamma camera, gamma knife).
Image	

1.3.

Title	**Plasma Generator at atmospheric pressure and low power**
Authors	Petreuș Dorin – Marius, Cordoș Emil, Grama Alin Marius, Cadar Sergiu Iulian, Plăian Emil
Institution	**Technical University of Cluj-Napoca**
Patent no.	Patent application No: A/10009/2010
Description	The invention consists of an electronic device that is capable to generate radiofrequency signal (13.56MHz) and to maintain plasma (~100W) at atmospheric pressure. It is used to generate integrated plasma in spectral analysis systems to estimate chemical composition of earth probe, materials, waste products, etc. The device is portable, more reduced in weight and size, and has a very high power coupling efficiency. So it is a very useful tool for "in situ" chemical analysis of soils.

1.4.

Title	**Increase of the biogas technology efficiency and biogas purification**
Authors	Olga COVALIOVA, Victor COVALIOV, Gheorghe DUCA, Valentin BOBEICA, Irina SENICOVSCAIA
Institution	**Moldova State University**
Patent no.	Cycle of patents MD № 2524; 2767; 67У; 105У; 171У; 2010-0119 dated 225.10.25.
Description	The improved methods are presented of anaerobic fermentation of organic wastes, along with the automatic systems of biogas selective treatment with the removal of CO_2, aggressive H_2S and mercaptanes, in order to increase the biomethane utilization efficiency. Separated CO_2 is returned into the methanogenic process or for the microalgae growth, and their biomass is re-circulated in anaerobic biochemical process.

1.5.

Title	**Methods of stabilised biodiesel fuel obtaining and the combined equipemnt for its realization**
Authors	Victor COVALIOV, Valentine SLIUSARENCO, Vladimir NENNO
Institution	**Moldova State University**
Patent no.	Patent No. 3559, Patent applications № 2010-0133 dated 2010.11.22; 2010-0132 dated 2010.11.22; 2010-0136 dated 2010.12.13 and 2011-0009 dated 2011.01.14.
Description	The new process is presented of diesel biofuel synthesis by catalytic superetherification of vegetable oils and animal fats with dehydrated wastes containing bioethanol, buthylic and amylic alcohols. The design of pilot experimental reactor with type new cavitation systems was elaborated, and this reactor has been manufactured and tested. The technology involves anti-bacterial stabilization of fuel and improving of its rheologic properties.

1.6.

Title	**Photocatalysis for the resolving of technologic and ecologic processes**
Authors	Olga COVALIOVA, Victor COVALIOV, Gheorghe DUCA
Institution	**Moldova State University**
Patent no.	Cycle of patents MD № 3911; 3682; 3776; 3558; 3630;

Description	3416; 3513; 210Y; 186Y, Patent application № 2010-0095 dated 2010.05.24. The new methods of homogeneous and heterogeneous photocatalysis are presented, along with their industrial applications. Methods of nanocatalysts manufacturing and using for purification of natural and waste waters are elaborated. The reactors have been developed for regeneration of active carbons, used technological solutions, fotocatalytical air activation and gas emissions treatment.

1.7.

Title	**WinePlant Waste containing detoxification Prussian Blue**
Authors	T. Bounegru, V. Botan
Institution	**Public Institution „Research and Practical Institute for Horticulture and Food Technologies”**
Patent no.	Patent 3344MD, 2006
Description	**Solution:** We propose an installation for of winery waste containing Prussian blue (cyanide compounds), consisting of a closed detoxification room, where the waste to be detoxified by heat at relatively low temperatures, 250 - 350^0C, and a protection system against elimination into the atmosphere of harmful gases formed as a result of the process are introduced. **Advantages:** 1. Installation is simple in construction and can be executed directly at wineries where these wastes are accumulated. 2. Installation has four protection systems against elimination of harmful gases into the atmosphere. 3. Detoxification occurs at relatively low temperatures, 250-300^0 C, which implie substantial energy savings compared to the incineration furnaces used for these purposes, operating at temperatures of 900-1200^0 C. 4. In the result of detoxification inoffensive products for environment (bentonite, Fe3O4, CO2, N2 and water vapor) are obtained. APPLICATION: In 2007 a installation-pilot has been certified by the Republican Scientific-Practical Centre of Preventive Medicine and Environmental Inspectorate, and in 2008 an industrial installation was built at SA Wine Factory "Agrovin Bulboaca", where 96 tones of wine waste containing Prussian blue were detoxified.

1.8.

Title	**Method of tank purification, especially from petroleum sediments**
Authors	Sławomir FALKOWICZ, Jacek SZCZEPANSKI, Scott BAILEY, Marcin ROGALINSKI
Institution	**Oil and Gas Institute, Krakow, Poland**
Patent no.	Patent application No. P. 379697
Description	According to the method being the subject of the invention, cleaning the tank involves coating the bottom of the reservoir with a bio – preparation, containing bacterial strains, leading to the creation of bacterial suspension, which dissolves the existing and the created residue. The generated, liquid hydrocarbons are transferred to the oil stored in the tank. The technical and economical benefit of this solution is the possibility of a continuous utilisation of the tank and the possibility of retaining its working capacity. In addition, the added bio – preparation works towards slowing the process of deposit forming, thus lowering the exploitation costs of the tank.

1.9.

Title	**Process for Sewage Water Purification from Methylene blue**
Authors	Ciobanu M., Sandu I., Lupaşcu T., Boţan V., Nistor A.
Institution	**Institute of Chemistry, Academy of Sciences of Moldova**
Patent no.	Nr. 4008 MD
Description	The invention relates to processes for removal of organic dyes from sewage waters, particularly a process for sewage water purification from Methylene blue. The process includes the catalitic oxidation by oxigen barbotage in water in presence of active carbon as catalist.

1.10.

Title	**Installation for magnetic treatment of fluids**
Authors	Mihai LASCHI
Institution	-
Patent no.	RO**119535/2005**
Description	The invention is based on the effects of a magnetic field on a fluid, which has specific intensity, speed and temperature. In zootechnics: increases the imunity, high quality. In agriculture: increase of productivity, soil structuration

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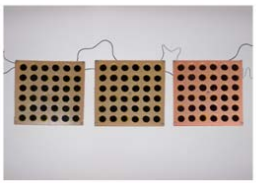
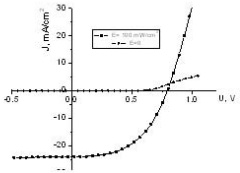
CLASS 2

Energy and sustainable development

2.1.

Title	CdTe-based photovoltaic minimodules for small power consumers
Authors	T.Potlog, N.Spalatu, V.Fedorov. C.Antoniuc, N.Maticiuc
Institution	**Moldova State University**
Patent no.	MD-3112
Description	Connecting CdTe solar cells obtained on glass substrate in the photovoltaic modules generate voltages of 3V, 5V, 12V, ... and current of 170 mA, 250 mA, 1.2 A ... respectively, which could be used to supply small power consumers.





2.2.

Title	**Novel technologies of hydrogen power engineering**
Authors	Victor COVALIOV, Olga COVALIOVA, Gheorghe DUCA
Institution	**Moldova State University**
Patent no.	Patent No. 3753; 3488; 3660; 3151; 244Y. Patent applications №№ 2010-0016 dated 2010.02.10; 2010-0094 dated 2010.05.24, 2010-0096 dated 2010.05.24.
Description	Types new of the compact electrochemical reactors are presented, based on the porous foamy metal electrodes for the broad use in industry, as well as the devices for gas cutting and moulding of metals. The processes elaborated ensure reducing of power adsorption capacity and increase of process efficiency, due to the reducing of hydrogen emission overvoltage and its purification in the mgnetic field.

2.3.

Title	**The Eco-Bionic House**
Authors	Alexandru STĂNILĂ, Dumitru CUCIUREANU, Ionuţ-Ovidiu TOMA, Ciprian VOROVEI, Petrică FODOR
Institution	**"Gheorghe Asachi" Technical University of Iasi, Faculty of Civil Engineering and Building Services**
Patent no.	Pending
Description	The research is focused on the integrated concept of an economic, ecologic and energy independent house. It is based on keen observations of natural phenomena and "inventions" for better life conditions. The Eco-Bionic House is a result of combining several technical solutions adapted to ensure a low maintenance cost and huge energy savings. The concept is aimed at individual dwellings, with the possibility of being extended to condominiums, closely following the requirements of sustainable development.

2.4.

Title	**Amplifier for bipolar current pulses, in hybrid bridge topology, with symmetrical drive**
Authors	Radu Arsinte, Dorin Petreuş
Institution	**Technical University of Cluj-Napoca**
Patent no.	Patent application No: A10010/2010
Description	The invention is an amplifier for bipolar current pulses, realized in full bridge architecture, using either MOS or bipolar switching elements, driven externally with complementary currents. It can be used to generate precise controlled current pulses in inductive loads (displays, electrical micro-motors, relays). The special topology allows obtaining a temporary idle state, if necessary, with a negligible consumption during this state.

2.5.

Title	**Device for vortex reduction and growth of oxygenation degree of turbine driven water**
Authors	DAIA Florian Petre, RAICU TICUSI Pantelie, NEMTOIU Simona-Greta, POENARU Dragos-Andrei
Institution	**SC Hidroelectrica SA**

Patent no.	Patent A/00471/02.06.2010
Description	The invention refers to a device for vortex reduction and growth of the oxygenation degree of turbine driven water under the Francis turbine runner, within the hydro electrical centrals. According to the invention, the device presents the following advantages: - it provides a stable drainage regime and eliminates the turbine vibrations in the hydro electrical centrals; - it reduces the cavitation phenomenon reduce of the turbine components; - it grows the oxygenation degree of the turbine driven water

2.6.

Title	**Photovoltaic station with sun' self orientation**
Authors	Bostan I., Dulgheru V., Dicusară I., Ciobanu O., Ciobanu R.
Institution	**Technical University of Moldova**
Patent no.	Patents MD3975/2010; MD2965/2006.
Description	The invention relates to the thermal power plants without fuel burning and CO2 production, namely to plants for solar energy conversion into electrical energy. The photovoltaic station with include a panel with solar cells, and mechanism for automatic sun orientation.

2.7.

Title	**Floatable Micro-hydropower Station with Adjustable Hydrodynamic Blades**
Authors	Bostan Ion, Gherghe Adrian, Dulgheru Valeriu, Bostan Viorel, Sochireanu Anatol, Ciobanu Oleg, Ciobanu Radu, Trifan Nicolae, Dicusară Ion
Institution	**Technical University of Moldova**
Patent no.	Patent MD3845/2009
Description	Micro-hydropower station provides kinetic energy conversion of river water into mechanical or electrical energy without building barrages. Increased efficiency is provided by blades aerodynamic profile and their optimum position for efficient conversion of water kinetic energy. Two industrial prototypes are fabricated.

2.8.

Title	**Power Wind Turbine with Horizontal Axle**
Authors	MD3847/2009, MD2431/2004.
Institution	**Technical University of Moldova**
Patent no.	Bostan Ion, Dulgheru Valeriu, Bostan Viorel, Sobor Ion, Sochireanu Anatol, Ciobanu Oleg, Ciobanu Radu, Dicusară Ion, Trifan Nicolae, Bodnariuc Ion, Ciupercă Radu, Odainâi Valeriu, Malcoci Iulian, Crudu Radu, Guțu Marin
Description	Aeolian turbine include three blades rotor with aerodynamic asymmetric profile. The wind orientation of the turbine is do by servomotor. The power of 10 kW is produced at wind speed of 11 m/s.

2.9.

Title	**Planetary Precessional multiplicator**
Authors	Bostan Ion, Dulgheru Valeriu, Trifan N.
Institution	**Technical University of Moldova**
Patent no.	Pending
Description	The elaborated precessional gearing is a multi-couple gearing (up to 100% of teeth pairs are gearing simultaneously). Increased bearing capacity, constructive advantageous, very large kinematical possibilities (*i=8...900*) have favored the elaboration of a large range of precessional multipliers for wind turbine and microhidropower stations.

2.10.

Title	**The stationary supercapacitor storage system to improving energy recuperation in traction supply system**
Authors	Paweł GIZINSKI, Zygmunt GIZINSKI Professor, Juliusz HILDEBRANDT Ph.D. , Michał ZYCH, Marcin ZULAWNIK
Institution	**Electrotechnical Institute, Department of Electric Traction, Warsaw, Poland**
Patent no.	Pending
Description	Supercapacitor energy storages which booster traction power supply system can be installed on traction substations or at long no-load run routes in special containers. Energy storages installed on substations should comply with the requirements specified below:

creased value of the peak current input to traction vehicles from substations ;
-Capture of a considerable (40 – 50%) part of energy to be returned to the contact line for the period of braking;
-Reduction in line voltage fluctuations.
-Energy storages installed on long no-load run routes must:
-Reduce the values of line voltage drop for the period of intensive current consumption by the vehicles for the start-up phase;
-Capture the entire vehicle braking energy;
-Reduce the load on power units and traction sub-stations.
Installation of supercapacitor energy storages featuring useful energy of ~2MJ (10F, 800V) ensures the economies of about 50KWh electric energy per one hour.
Electrotechnical Institute has designed a supercapacitor energy storage system to be mounted in a container and is testing the model on a selected tramway line in Elbląg.
In the case of sub-stations, the energy storage may be designed as a modular model with its units adapted to the sub-station power capacity. Production of a double-module (2x10F, 800V) system for Gdynia-based sub-station is in progress.

2.11.

Title	**Installation for Obtaining Dehydrated Ethyl Alcohol**
Authors	M. Stîțiuc, V. Vişnevschi, C. Olaru
Institution	**Research and Practical Institute for Horticulture and Food Technologies**
Patent no.	Short Patent MD206, 2010
Description	SOLUTION: We propose an installation for dehydration of alcohol consisting of: concentration column, column of dehydration, dephlegmator, condenser, refrigerant, dehydration agent reservoir, dehydrated ethyl alcohol reservoir, characterized in that the concentration column has 45 trays, dehydration column has 52 trays, and for regeneration of dehydration agent (propylene glycol) an installation working in vacuum is used. ADVANTAGES: Production of bioethanol (dehydrated ethyl alcohol) can be organized in localities directly at enterprises, producing food rectified ethyl alcohol in ethyl alcohol dehydration installations using as dehydration

	agent propylene glycol, which is not toxic. STAGE: At present, at the company "Comvincom", or. Comrat, Republic of Moldova, it is designing a bioethanol production installation using propylene glycol as dehydration agent.
2.12.	
Title	**Process for Obtaining Dehydrated Ethyl Alcohol**
Authors	M. Stîțiuc, B. Gaina, V. Vișnevschi, T. Bounegru
Institution	**Research and Practical Institute for Horticulture and Food Technologies**
Patent no.	Short PATENT MD182, 2010
Description	SOLUTION: For dehydration of rectified ethyl alcohol the process provides using of propyleneglycol as dehydration agent, which having been introduced into hydroalcoholic mixture (rectified ethyl alcohol hydroalcoholic waste), form triple mixtures: ethyl alcohol - water - propyleneglycol. At distillation of these mixtures water remains linked to propyleneglycol and ethyl alcohol is dehydrated to the ethanol concentration of 98.9 - 99.5% by volume. Used propyleneglycol is collected, regenerated and returned into dehydration process. ADVANTAGES: Propyleneglycol is not toxic, at dehydration does not pass into ethyl alcohol and easily regenerates, is stable and does not change during dehydration of ethyl alcohol or its regeneration. Dehydration installations, using propyleneglycol as dehydration agent, may be installed in locations directly at factories producing ethyl alcohol. STAGE: At present, at company "Comvincom", or. Comrat, Republic of Moldova, it is designing an installation producing bioethanol using propyleneglycol as a dehydration agent.
2.13.	
Title	**Ecologic heat exchanger**
Authors	Carmen BAL, Nicolae BAL, Ioan I. POP, Ioana DENES POP
Institution	**Technical University of Cluj-Napoca**
Patent no.	Pending
Description	This patent propose a new ecological solution of obtaining heat, by utilizing the sonicity principles.

CLASS 3.

Agriculture and Food Industry

3.1.

Title EN	**Chick-pea *(Cicer arietinim L.)* var. Sanduts**
Authors	Valentin Celac
Institution	**Academy of Science of Moldova, Institute of Genetics and Plant Physiology**
Patent no.	Pending
Description	The invention is related to the new chick-pea cultivar created with improved rezistance to drought and diseases, produces a bean yeld – 2,29t/ha. Protein content in seeds – 21,01%, fat – 5,05%. The vegetative period – 103 days.

3.2.

Title EN	**Grasspea *(Lathyrus sativus L.*) var. Bogdan**
Authors	Valentin Celac
Institution	**Academy of Science of Moldova, Institute of Genetics and Plant Physiology**
Patent no.	Pending
Description	The invention is related to the new grasspea cultivar created with improved rezistanse to drought and diseases, produces a bean yeld - 3,03t/ha. Protein content in seeds – 30,3%, fat – 0,52%. The vegetative period – 92-115 days.

3.3.

Title EN	**Technology of growing of raspberry in ecological culture**
Authors	Bujoreanu Nicolae, Barbaroş Mihail, Toderaş Vladimir, Marinescu Marina, Ralea Tudor, Chirilov Eleonora etc.
Institution	**Academy of Science of Moldova**
Patent no.	MD 288 / Patent application No. 288/2011
Description	**Growing of ecological culture of raspberry** include: agrochemical estimation, soil management with natural fertilizers, using virus-free plant material, installation of the system of support and drip irrigation, use of SBA and ecological products during the plants growing in increasing productivity and quality of crop, the application of biological preparations in combating diseases and pests.

Avantage: The proposed technology allows obtaining certified ecological fruits, replacing all the chemicals and chemical fertilizers that are harmful for human health and the environment.
Scope: horticulture.

3.4.

Title EN	**Magnetic grains for agriculture. Magnetic ecologic fertilizer**
Authors	Ioan Davidoni, Ioan-Ciprian Davidoni
Institution	-
Patent no.	Pending
Description	Magnetic elements with large frequence spectre, rare soils with small natural grain size, with oscilation capacity: 1000 Hz -60 GHz. Usage: 15-18 kg /ha, once at 20 years.

3.5.

Title EN	**Biologically active food additives**
Authors	T. Strutinsky, M. Petreanu, M. Timoshco
Institution	**The Institute of Physiology and Sanocreatology, Academy of Sciences of Moldova**
Patent no.	Patent MD 3879, 253, 290 / Patent application No. s20100160, s20100161MD
Description	Biologically active food additives containing natural vegetale products in a efficient combination components and a optimal proportion of biologically active substances, which influences the complex of all body systems, provide to restore and maintain in sanogenic limits so process of digestion, as the metabolic processes. Can be used for prophylactic purposes by including in the composition of functional food.

3.6.

Title EN	**Thermal optimization method in the installation for intensive fish breeding and installation for applying the method.**
Authors	Prof. Liviu Miron Ph.D., Prof.Ionel Miron Ph.D.
Institution	**National Institute of Inventics Iasi, "Alexandru Ioan Cuza" University iasi**
Patent no.	Patent application No. 00265/2009

Description	The invention relates to a method for optimizing the water temperature for the intensive fish farming and the applying technology. The application of the method consists of a compressed air transport network from a eco-wind-power station at the extremity of a deep tube located under the floating farm. The distribution of air lead cold water at the top of the pipe where a fixed disk distribute the cold water in the cage area.

3.7.

Title EN	**Universal Seeder**
Authors	Ciubucciu Gherasim
Institution	-
Patent no.	OSIM Pending a 2010 00335 /19.04.2010
Description	The invention describes a seeder with electrovacuumetric distribution consisting of a variable speed electric motor which is designed to rotate a distributor disk according to the distance between the grains to be seeded. To obtain the vacuum needed for grain extraction and distribution, an electrical fan or electrical miniexhaustor is used on the distributor disk.

3.8.

Title EN	**Aquaculture process using organic fertilizers and agricultural products**
Authors	Jafar hayaty nejad
Institution	**Islamic azad University branch of mashad(Quochan)**
Patent no.	IR 68084 / Patent application No. jan 27 /2011
Description	The invention of integrating fish production of organic fertilizers, including liquid ANOVA as compost tea - a significant wermicompost ozone water producing vegetable crops - flowers - trees - pays edible mushroom products is completely organic and no chemical fertilizers or herbicides and poisons Drawing for these products is not used. Other features of the invention produce lower prices than similar samples - high quality products - saving time and electricity and water are.

3.9.

Title EN	**Biostimulation Procedure Of Tomato Crop**
Authors	Iurea D. Dorina, Mangalagiu Ionel, Munteanu Neculai, Chintea Pavel, Chirilov Eleonora, Contenco Eugenia, Iurea Pavel, Iurea Roxana - Ionela
Institution	**„Al.I.Cuza" University of Iasi, Academy of Science of Moldova, Institute of Genetics and Plant Phyisiology**
Patent no.	Patent MD, nr. **S 2010 0107**
Description	The invention is reffering to a bioorganic chemistry application, respectively to a steroidic glycoside of vegetal origin, with biological active effect, which could be applied in agriculture. The hard point of the invention is Tomatoside (a vegetal origin steroidic compound) treatment at tomato crop. Tomato treatments includes spraying inflorescences of tomato plants with a solution of Tomatoside Preparation is applied in small amounts (0,001%, 0,01%), is cheap and easily to be obtained. One environmentally friendly biologically active compound from the steroidal glycoside class - Tomatoside – was proposed as tomatoes growth up factor and development regulator. Using Tomatoside results in 18-20% production increasing as well as its quality optimisation.

3.10.

Title EN	**Biostimulation Procedure Of Pepper Crop**
Authors	Iurea Dorina, Mangalagiu Ionel, Munteanu Neculai, Chintea Pavel, Iurea Roxana-Ionela
Institution	**„Al.I.Cuza" University of Iasi, Academy of Science of Moldova, Institute of Genetics and Plant Phyisiology**
Patent no.	Patent MD, nr. **A 816**
Description	The invention relates to agriculture, especially vegetable growing and may be used for pepper cultivation. The process, according to the invention consists in treating the foliage of pepper plants before flowering, after flowering and fruit setting stage with steroid glycoside tomatoside aqueous solution in concentrations of 0.001% - 0.08%, with a total consumption of 0.25 to 0.30 L / plant. Result consists in optimizing the physiological processes in plants, leading to increased production up to early 23 to 28% and total production by up to 14%. Crop quality is not impaired in any way after applying tomatoside to the product.

3.11.

Title EN	**Treatment Process Of Apple Tree**
Authors	Iurea Dorina, Mangalagiu Ionel, Munteanu Neculai, Chintea Pavel, Iurea Roxana-Ionela
Institution	**„Al.I.Cuza" University of Iasi, Academy of Science of Moldova, Institute of Genetics and Plant Phyisiology**
Patent no.	MD, nr. **S 2010 0192**
Description	The invention is reffering to a bioorganic chemistry application, respectively to a steroidic glycoside of vegetal origin, with biological active effect, which could be applied in agriculture (pomiculture). The hard point of the invention is the evaluation of Tomatozid treatment on the plantation of apple trees. The treatments consisted in spraying the aqueous solution of steroidal glycoside, at different doses and ways of using. The results of the invention pointed out the positive effects of the influence of treatments with steroidal glycoside on the growth and quality development of apple trees. The product, according to invention, is a result of alcoholic extraction from tomato (Lycopersicon esculentum) seeds; it is of natural origin, non – toxic, cheap and does not have adverse effects.

3.12.

Title EN	**The strain of nodulating bacteria Rhizobium phaseoli for treatment of the haricot seeds before sowing**
Authors	Dr. Leonid Onofras, dr. Vasile Todiras, Svetlana Prisacari
Institution	**Academy of Sciences, Moldova** **Institute of Microbiology and Biotechnology**
Patent no.	MD 3054 G2
Description	In the basis of the bacterial strain discovered by the authors and it,s cultivation on the special nutritive media is obtained the biologic preparation used for haricot seeds treatment before sowing

3.13.

Title EN	**Technology of *BILEV* bioproducts obtaining from brewer's yeast**
Authors	Agafia Usatîi, Elena Molodoi, Topală Lilia, Efremova Nadejda
Institution	Academy of Sciences of Republic of Moldova Institute of Microbiology and Biotechnology
Patent no.	Pat. MD 3538, G2, 2008.03.31, BOPI nr. 3/2008 Pat. MD 3570, G2, 2008.04.30, BOPI nr. 4/2008 Pat. MD 4044, G2, 2009.12.03, BOPI nr. 5/2010
Description	The technology is based on the use of *Saccharomyces carlsbergensis CNMN-Y-15* yeast strain, material for inoculum producing, fermentation on the efficient nutritive medium MN-3 and utilization of new procedures for extraction of biologically active products from microbial biomass. Bioproducts *BILEV* with increased content of ergosterol and others bioactive compounds (proteins, essential amino acids, lipids, carbohydrates) are proposed to obtain various pharmaceutical preparations.

3.14.

Title EN	**Method of biological control of ticks**
Authors	Toderaş Lidia, Movilă Alexandru
Institution	**Academy of Science, Moldova, Institute of Zoology**
Patent no.	Patent application MD 3130/2007
Description	The method includes infection of ticks in their habitats using the imago of the ixodids infected with conidia of the *Bauveria bassiana* fungs, isolated from natural population, the ratio of infected and uninfected mites being of 1:500, respectively.

3.15.

Title EN	**Methods of preparation and complementary feeding of wild animals**
Authors	Munteanu Andrei, Savin Anatolie, Ţurcanu Ion
Institution	**Academy of Science, Moldova, Institute of Zoology**
Patent no.	MD 3584/2009; MD 3639/2009; MD 3794/2010
Description	The methods consist in preparation and complementary feeding with fodder prepared from sugar beet husks or fresh apples, forest hay-cut or dried nettle (Urtica dioica) harvested in flowering period or chopped barley. The components are arranged in layers, each layer of husks is sprinkled with iodized salt. New economic modality of preparation and feeding of wild animals, which complete the deficit of natural food with important elements - vitamins, proteins, carotene, microelements, which contribute to the increasing of reproductive capacity, reduction of mortality and of migration process and, as result, to the increasing of wild animal number. Complementary feeding compensates the natural food deficit and diminishes the prejudice caused to forest ecosystems or to agricultural crops.

3.16.

Title EN	**Apiren Basarabean**
Authors	Savin Gh., Popov A., Cornea V.
Institution	**Research and Practical Institute for Horticulture and Food Technologies**
Patent no.	30 / 2008.07.31
Description	Seedless grapevine variety with increased resistance to pests

	and diseases. Cluster is medium to large, conical, loose or medium compact. Berries are small – medium, rose, very juicy uncolored pulp. High sugar content of must (227 g/l). Average yield is 14 tons per hectares (adjusted in against the destination of grapes utilization). Time of full physiological maturity of the berries is I-II decade of September. Utilization of grapes: technological processing for raisins, wine for current consumption. Scope of use: viticulture, food industry, winemaking

3.17.	
Title EN	**Apiren roz timpuriu**
Authors	Savin Gh., Popov A., Cornea V.
Institution	**Research and Practical Institute for Horticulture and Food Technologies**
Patent no.	31 / 2008.07.31
Description	Seedless grapevine variety with very early maturity and increased resistance to pests and diseases. Cluster is medium, conical, medium compact. Berries are small-medium, rose or dark rose, firm and crispy pulp. High sugar content of must (234 g/l). Average yield is 10 tons per hectare. Time of full physiological maturity of the berries is III decade of July – I decade of August. Utilization of grapes: fresh consumption and technological processing (for raisins). Scope of use: viticulture, food industry

3.18.	
Title EN	**Apiren negru de Grozeşti**
Authors	Savin Gh., Popov A., Cornea V.
Institution	**Research and Practical Institute for Horticulture and Food Technologies**
Patent no.	32 / 2008.07.31
Description	Seedless grapevine variety with increased resistance to pests and diseases. Cluster is medium, conical, medium compact. Berries are small-medium, blue-black, bloomed, very juicy uncolored pulp. High sugar content of must (236 g/l). Average yield is 14 tons per hectare. Time of full physiological maturity of the berries is I-II decade of September. Utilization of grapes: technological processing for juice, concentrated must, jelly, raisins. Homologated variety. Scope of use: viticulture, food industry

3.19.

Title EN	**Muscat timpuriu**
Authors	Guzun N., Olari T., Țîpco M., Djurii V.
Institution	**Research and Practical Institute for Horticulture and Food Technologies**
Patent no.	48 / 2009
Description	Grapevine variety for table grapes with early time of maturation of berries and high vigor of growth. Cluster is cylindrical – conical, loose, weight of single bunch is 300-400 g. Berries are large or very large, ovoid, green-yellow, with strong muscat aroma. Average yield is 12 tons per hectare. Time of full physiological maturity of the berry is II decade of August. Utilization of grapes: fresh consumption. Homologated variety. Field of application - viticulture. In Republic of Moldova area of vineyards under variety is about 4 hectares.

3.20.

Title EN	**Guzun**
Authors	Guzun N., Olari T., Țîpco M., Cazac T., Djurii V., Supostat L., Ciobanu V.
Institution	**Research and Practical Institute for Horticulture and Food Technologies**
Patent no.	MD 49 / 2009
Description	Grapevine variety for table grapes with high vigor of growth and increased resistance to low temperatures. Cluster is medium-large, weight of single bunch is 360 g. Berry is ovoid, green-yellow, with muscat aroma. Average yield is 13 tons per hectare. Time of full physiological maturity of the berry is II decade of September. Utilization of grapes: fresh consumption. Homologated variety. Field of application - viticulture. In Republic of Moldova Area of vineyards under variety is about 7 hectares.

3.21.

Title EN	**Mărgăritar**
Authors	Guzun N., Olari T., Țîpco M., Cazac T., Djurii V., Nezalizova I., Cogălniceanu I., Supostat L.
Institution	**Research and Practical Institute for Horticulture and**

	Food Technologies
Patent no.	MD 47 / 2009
Description	Grapevine variety for table grapes with high vigor of growth. Cluster is conical, weight of single bunch is 400 g. Berry is elliptic, green-yellow. Average yield is 9-12 tons per hectares. Time of full physiological maturity of the berry is I decade of September. Utilization of grapes: fresh consumption. Homologated variety. Field of application - viticulture. In Republic of Moldova area of vineyards under variety is about 2,5 hectares

3.22.

Title EN	**Procedure for cultivation of grapevine**
Authors	Botnarenco A., Parfenenco L., Cuharschi M.
Institution	**Research and Practical Institute for Horticulture and Food Technologies**
Patent no.	MD3177 / 2006
Description	The procedure include formation of grapevine bush with steam of 110-140 cm with bilateral or unilateral cordon and its fixation on trellis; the trellis consists of posts with orifices situated at a distance of 50 and 300 mm from the top end through which are passing one or two parallel wires used for fixing the branches of cordon and vines and sprouts are free dropping. The advantage is to exclude the following operations: removing of the vines from espalier, tying up of sprouts as well as allow the mechanical cutting. Scope of use: viticulture. At the moment procedure is applied in vineyards with area of 100 hectares.

3.23.

Title EN	**Process for reducing the content of diglycosides in red wines**
Authors	Taran N., Scorbanova E., Rinda P., Degteari N., Şova M., Comanici V., Feiger L.
Institution	**Research and Practical Institute for Horticulture and Food Technologies**
Patent no.	MD3169 / 2006
Description	The invention refers to the wine industry, namely to a process for diminishing the diglycosides content in the red wines.

	The process, according to the invention, includes treatment of the wine with β-glucosidase activity in a dose of 40-200 mg/dm3 at a temperature of 24-30°C, mixing, ageing during 5-20 days and withdrawal from the sediment. The invention is implemented in the section of Microoenologie of the IŞPHTA, Republic of Moldova.

3.24.

Title EN	**Process for fabrication of sparkling wine with advanced properties of foaming**
Authors	Taran N., Soldatenco E., Ponomariova I.
Institution	**Research and Practical Institute for Horticulture and Food Technologies**
Patent no.	MD3842 / 2008
Description	The invention refers to the wine-making industry, particulary to a process for producing sparkling wine with increased foamy properties. The process, according to the invention, includes blending of the treated wine stocks, addition of succinic acid in a dose of 0.25-1.00 g/dm3 and/or amino acid: tryptophane and/or methionine, each in a dose of 0.01-0.10 g/dm3, agitation, preparation of the fermenting mixture and secondary fermentation in bottles or in hermetic metalic reservoirs. The invention is implemented in the S.A. „Cricova", city Cricova of the Republic of Moldova

3.25.

Title EN	**Process For Obtaining Distillate For Strong Spirits**
Authors	P. Parasca, Stîțiuc M., E. Rusu, A. Gurin
Institution	**Research and Practical Institute for Horticulture and Food Technologies**
Patent no.	Patent 3056MD, 2006
Description	SOLUTION: To obtain strong drink of high quality it is proposed to obtain distillate by fractional distillation of the raw material obtained by homogenization of grain candied mass with a mixture of pressed grape juice and diffusion

juice with their subsequent summary fermentation or by homogenization of the grain candied mass with raw wine of strength at least 6% vol.
Advantages: A distillate is obtained with a specific taste and aroma close to the distillate of wine, allowing the production of high quality strong drinks.
APPLICATION: In the years 2007 and 2008 was used industrially by SA Wine Factory "Agrovin Bulboaca" to obtain such a distillate.

3.26.

Title EN	Installation for obtaining rectified ethyl alcohol of vine origin
Authors	M. Stîţiuc, V. Vişnevschi, T. Bounegru, N. Chernivtsi-Frasiniuc
Institution	**Research and Practical Institute for Horticulture and Food Technologies**
Patent no.	MD Short PATENT No. 224, 2010
Description	SOLUTION: An installation to obtain rectified ethyl alcohol consisting of a distillation boiler, a distillation column, dephlegmator, barboter, condenser, a rectifying column, a refrigerant for rectified alcohol, a vacuum valve, a refrigerant for the hetero-aldehyde fraction, a reservoir for hetero-aldehyde fraction, a fusel oil reservoir and a pump for returning low alcohol phlegm to the distillation column, which allows to obtain rectified ethyl alcohol with alcohol concentration not less than 95.8 % vol, separate hetero-aldehyde fraction and fusel oil from ethyl alcohol is proposed. ADVANTAGES: New installation enables to obtain rectified ethyl alcohol of vine origin with alcohol concentration in the product not less than 95.8% vol. Using of two distillation columns instead of one allows installation in rooms fitted with ceiling height of 7 ... 8 meters. STAGE: According to this patent, S.A. "Cereals", s. Ghetlovo, Moldova, has been built an industrial installation for producing vine origin rectified ethyl alcohol.

3.27.

Title EN	**Strain of yeast *Saccharomyces cerevisiae* - a source of *β*-glucans**
Authors	Chişelița O., Usatîi A., Taran N., Rudic V., Chişelița N., Adajuc V.
Institution	**Research and Practical Institute for Horticulture and Food Technologies**
Patent no.	4048 / 2010
Description	The invention relates to biotechnology, in particular to a strain of yeast *Saccharomyces cerevisiae* used to obtain *β*-glucans. The strain of yeast *Saccharomyces cerevisiae* is deposited in the National Collection of Nonpathogenic Microorganisms of the Institute of Microbiology and Biotechnology of the ASM under the number CNMN-Y-20 as a sourse of β-glucans.

3.28.

Title EN	**Process for production of the wines – raw material for vine distillates**
Authors	Taran N., Duca Gh., Gonța M.
Institution	**Research and Practical Institute for Horticulture and Food Technologies**
Patent no.	295 / 2010
Description	The invention relates to wine industry, in particular to a process for obtaining wine stocks for wine distillates. The process, according to the invention, includes the introduction into the mash or into the mash and into the must of acid sodium dihydroxifumurate in a total dose of 50-200 mg/dm3, clarification of must at a temperature of 10-12°C during 12-18 hours, fermentation of the must at a temperature of 14-18°C and storage of wine stocks at a temperature of 14-20°C during 2-3 months, at the same time introduction of acid sodium dihydroxifumurate into the must is carried out at the stage of its clarification. The invention is implemented in the section of Microoenologie of the IŞPHTA, Republic of Moldova

3.29.

Title EN	**The proceeding of obtaining of cellulaso-amylasic complex destinated for animal husbandry**
Authors	dr.b. Deseatnic-Ciloci Alexandra, dr.b. Tiurina Janetta, dr. b. Clapco Steliana, dr. ş. agr. Caisin Larisa, Stratan Maria, dr.h.ş.agr. Harea Vasile, Labliuc Svetlana, Dvornina Elena
Institution	**Institute of Microbiology and Biotechnology of Academy of Sciences of Moldova** **State Agricultural University of Moldova** **Scientific And Practical Institute Of Biotechnologies In Animal Husbandry And Veterinary Medicine** **State Enterprise for Research in Selection and Hybridisation of pigs "Moldsuinhibrid"**
Patent no.	Pending MD 5377 a 2010.0101 (2010.09.16)
Description	The present invention solve the problem of obtaining a specific cellulaso-amylasic complex, with balanced by respective enzyme activities (celobiohydrolases, endoglucanases, β-glucosidases, xylanases, amylases), with capacities of disintegration of the natural polymers (cellulose, hemicellulose, starch) and improving the nutrient digestibility in mixed fodder (with high cellulose content) destined for young pigs and poultry.

3.30.

Title EN	**Fungal strain – a producer of cellulases and xylanases**
Authors	dr.b. Deseatnic-Ciloci Alexandra, dr.b. Tiurina Janetta, dr.b. Clapco Steliana, Labliuc Svetlana, Stratan Maria, Grumeza Maria
Institution	**Institute of Microbiology and Biotechnology of Academy of Sciences of Moldova**
Patent no.	MD 4072/2010
Description	The invention consists in identifying the fungal strain *Aspergillus niger* CNMN FD 10, which synthesizes a complex of hydrolytic enzyme with high cellulosolytic and xylanolytic activity. β-glucosidases synthesized by the selected strain are characterized by tolerance to the high acidity of reaction medium (pH 2,2 – 3,5) and can be used in winemaking to enhance the aroma of the high quality wine.

3.31.

Title EN	**Copper-pyruvic acid aminoguanisone complex prossessing properties of microorganism biosynthetic activity stimulator**
Authors	dr. ch. Donica Ioana, dr.b. Deseatnic-Ciloci Alexandra, dr. ch. Ciapurina Ludmila, Stratan Maria, dr. hab. ch. Turtă Constantin, Kravtov Victor
Institution	**Institute of Chemistry of Academy of Sciences of Moldova** **Institute of Microbiology and Biotechnology of Academy of Sciences of Moldova** **Institute of Applied Physics of Academy of Sciences of Moldova**

Patent no.	MD 3654/2008
Description	The invention consists in obtaining a new coordinative compound on base of copper and aminoguanisone with stimulating features to microorganisms biosynthetic processes.

3.32.

Title EN	**Process for treating triticale seeds with reduced viability**
Authors	Corlăteanu Liudmila, Ganea Anatolie, Chintea Pavel
Institution	**Institute of Genetics and Plant Physiology of Academy of Sciences of Moldova**
Patent no.	MD154
Description	The invention relates to agriculture and may be applied in phytotechny for treating triticale seeds after long-term storage thereof. The process for treating triticale seeds with reduced viability includes their presowing treatment by aqueous solution of tomatoside in low concentrations. The result consists in increasing the triticale seed viability after long-term storage thereof.

3.33.

Title EN	**Process for treating chickpea seeds with reduced viability**
Authors	Corlăteanu Liudmila, Ganea Anatolie, Chintea Pavel
Institution	**Institute of Genetics and Plant Physiology of Academy of Sciences of Moldova**
Patent no.	MD153
Description	The invention relates to agriculture and may be applied in phytotechny for treating chick pea seeds after long-term storage thereof. The process for treating chick pea seeds with reduced viability includes their presowing treatment by aqueous solution of tomatoside in low concentrations. The result consists in increasing the triticale seed viability after long-term storage thereof.

3.34.

Title EN	**3-O-{[α-L-rhamnopyranosyl(1→2)]-[α-L-rhamnopyranosyl(1→4)]-β-D-glucopyranoside}-(25R)-cholest-5-en-3β,19,22β,26-tetraol-[26-O-β-D-glucopyranoside], increasing the seed setting in distant hybridization.**
Authors	Șveț Stepan, Veveriță Efimia, Chintea Pavel, Jacotă Anatol, Marcenco Alexandra.
Institution	**Institute of Genetics and Plant Physiology of Academy of Sciences of Moldova**
Patent no.	MD4036
Description	The invention relates to a biologically active substance from the class of steroid glycosides, which can be used in selection in crossing winter wheat with rye to produce new forms of triticale. A new steroid glycoside is proposed of the series of cholestane 3-O-{[α-L-rhamnopyranosyl(1→2)]-[α-L-rhamnopyranosyl(1→4)]-β-D-glucopyranoside}-(25R)-cholest-5-en-3β,19,22β,26-tetraol-[26-O-β-D-glucopyranoside], increasing the seed setting in distant hybridization.

3.35.

Title EN	**Process for presowing treatment of sweet pepper seeds**
Authors	Maschenko Natalia, Kintea Pavel, Marchenco Alexandra, Cozar E., Baruzdina O., Bespalko L., Balashova N., Balashova I.
Institution	**Institute of Genetics and Plant Physiology of Academy of Sciences of Moldova**
Patent no.	MD98
Description	The result of the invention consists in increasing of the sweet pepper seed resistance (on 35-58%) to stress caused by low temperatures by method of seed treatment in aqueous solution containing $5 \cdot 10^{-3}$-$5 \cdot 10^{-4}$ of glycosides, obtained from plants Linaria vulgaris Mill.

3.36.

Title EN	**Treatment of onion seeds**
Authors	Botnari Vasile,.Chintea Pavel, Borovskaia Alla, Ganceacovschi Iuliana
Institution	**Institute of Genetics and Plant Physiology of Academy of Sciences of Moldova**
Patent no.	MD315
Description	The invention consists in increasing the germination energy of 19% and total germination of onion to 4%, treated with 0.01% aqueous solution of steroid Pavstim. This method allows to obtain amicable germination and uniform growth of plants onions, increase productivity and improve product quality.

3.37.

Title EN	**Procedure of apricot trees cultivation**
Authors	Şişcanu Gheorghe, Titova Nina, Chintea Pavel, Malina Raisa.
Institution	**Institute of Genetics and Plant Physiology of Academy of Sciences of Moldova**
Patent no.	MD177
Description	The essence of the method consist in the treatment of treatment of young apricot trees by the water solution of mixture substance Moldstim and microelement zinc that stimulate growing processes, leaf apparatus formation, organ biomass accumulation, increase photosynthetic productivity, that contribute to harvest considerable enhancement.

CLASS 4

Medicine – Health Care - Cosmetics

4.1.

Title	**Technology of Adaptation Reactions Effectiveness Study**
Authors	V. Samokhvalov, O. Bulynina, I. Isaeva
Institution	**Kharkov National Medical University, Ukraine**
Patent no.	Patents of Ukraine
Description	It is establish that genetically conditioned type and degree of functional asymmetry is considerable influence onto adaptation reactions effectiveness. In particular, left – side type of functional asymmetry in conjunction with its expression more than 15 % are trustworthy risk factors call disadaptative disorders origin. Produced technologie of adaptation reactions effectiveness study.

4.2.

Title	**Technology of Risk Factor of Disadaptative Disorders Origin Study**
Authors	V. Samokhvalov, I. Isaeva, O. Bulynina
Institution	**Kharkov National Medical University, Ukraine**
Patent no.	Patents of Ukraine
Description	It is establish that initial low level of systemic arterial pressure in young age persons is a trustworthy correlate of reduce physical able – bodied and high cost of adaptation to physical work. When proper level of blood circulation in all organs and tissues during physical work is realized by increase of heart rate mainly it is a risk factor of disadaptative disorders origin. Technologie of Risk Factor of Disadaptative Disorders Origin Study produced.

4.3.

Title	**Method for the manufacturing of scaffolds and composite materials designed for Tissue Engineering**
Authors	Catalin Popa[a], Liana Cont[a], George Dindelegan[b], Viorica Simon[c], Ioana Brie[d], Codruta Pavel[a], Viorel Candea[a]

Institution	**a – Technical University of Cluj-Napoca, b – University of Medicine and Pharmacy "Iuliu Hatieganu" of Cluj-Napoca, c – University "Babes – Bolyai" of Cluj-Napoca, d – The Oncology Institute "Prof.Dr. Ion Chiricuta" din Cluj-Napoca**
Patent no.	Patent application RO No: A/10035/2010
Description	The patent refers to a manufacturing method for composite scaffolds designed for the seeding and attaching of cells that form an implantable tissue. The composites are directly obtained through electrospinning performed on a collector that supports a unidirectional / bidirectional array of bioresorbable suture wires. A porous matrix containing micro / nanofibres is deposited through electrospinning on both sides of the as obtained composite sheet. The matrix and wires are made of different bioresorbable polymers, assuring optimal bioerosion duration, while maintaining the desired strength according to the application.

4.4.

Title	**Expert system applied in oral health concerning prevention of tobacco consumption and smoking cessation**
Authors	Stela Carmen Hanganu
Institution	**University of Medicine And Pharmacy "Grigore T. Popa"- Iasi**
Patent no.	Pending
Description	It is proposed the development and implementation for the first at national level of an expert system named SANFACTOR, which use techniques of knowledge accumulation in the doctor-patient dialogue using specific media. The main innovative element of the project is the expert system including the software for command and dedicated control, which addresses users of middle educational level as well, with facilities for adaptation and reconfiguration according to the served application.

4.5.

Title	**New antibacterial substances**
Authors	Prisacari Viorel, Tsapcov Victor, Burachiova Svetlana, Bârcă Maria, Gulea Aurelian
Institution	**State Medical and Pharmaceutical University "Nicolae Testemitanu" of the Republic of Moldova**
Patent no.	MD 2942 C2
Description	New group of organic compounds, biologically active from tiosemicarbazone class with low toxicity and evidenced bactericide activity to a large spectrum of Gram-positive and Gram-negative microorganism. The presented compounds being of about 2 – 64 times more active to the Gram-positive and Gram-negative bacteria, than the prototype (furacilinum). The toxicity of the presented compounds is >1500 mg/kg and belongs to the class of compounds with low toxicity.

4.6.

Title	**Compounds of cooper with antibacterial properties**
Authors	Prisacari Viorel, Gulea Aurelian, Tsapcov Victor, Burachiova Svetlana, Spînu Stela, Bejenari Natalia
Institution	**State Medical and Pharmaceutical University "Nicolae Testemitanu" of the Republic of Moldova**
Patent no.	MD 3124 C2
Description	The invention represents new organic substances mixed legands of copper tiosemicarbazonates and sulfanilamides, with low toxicity and evidenced antibacterial activity to a large spectrul of Gram-positive and Gram-negative microorganismes. It is 2 - 4000 times more active then structure analoques. The toxicity of the presented compounds is > 4000 mg/kg and belongs to the class of compounds with low toxicity.

4.7.

Title	**Use of water-soluble oenotannin for the treatment of gastric and duodenal ulcer**
Authors	CERLAT Sergiu, GONCIAR Veaceslav, LUPAŞCU Tudor
Institution	**State University of Medicine and Pharmacy „Nicolae Testemiţeanu", Institute of Chemistry A.Ş.M.**
Patent no.	MD 293 (13) Y9

Description

The invention relates to medicine, in particular to gastroenterology and can be used for the treatment of gastroduodenal ulcers.Summary consists in the use of water-soluble oenotannin, obtained by oxidation of oenotannin with hydrogen peroxide , for the treatment of gastric and duodenalulcer. The result of the invention is to obtain a more effective drug for the treatment of gastroduodenal ulcers with the use of a substance of natural origin with high biological activity

4.8.

Title **Additional Device For Toilet Seats**

Authors Marijan Biljan

Institution **Croatia**

Patent no. Design application: HR D20110078A

Description

Main purpose is on the spot, personal hygiene. The device is mounted right under the toilet seat, and is fixed with screws which hold the toilet seat as well. The device is ready for use when connected to supply of water via tube with valve (or a mixer of warm and cold water). Advantages of using this device are: better quality of personal hygiene, easy and quick mounting, low cost of the device (compared to ready made toilet seat with integrated taps), and up to 90% savings on toilet paper consumption.

4.9.

Title **Cosmel – Natural/Organic Dermocosmetics (4 products)**

Authors Melita Pavlek-Moćan

Institution **COSMEL d.o.o, Zagreb, Croatia**

Patent no. Pending

Description

EMULSION SEB for dealing with seborrheic problems of hair root (plaque and dandruff). Natural substances soften the hair root (shea butter and jojoba oil), have keratolitic

(AHA-acids) and antibacterial (sage and propolis) effects.
SHAMPOO SEB for greasy hair and hair root with seborrheic problems, plaque and dandruff (sage, lemon, collagen, propolis).
EYE CREAM for sensitive skin against wrinkles and dark circles under the eyes. Natural ingredients of jojoba, almond, apricot, grape seeds, pot marigold, rosewood, lavender, horse-tail, E and A vitamins have a soothing effect on the skin and accelerate its regeneration.
GREEN TEA CREAM for greasy and impure skin. Natural ingredients of green tea, hazelnut oil, rice, grape seeds, caraway, tangerine, lavender, zinc and E and A vitamins have antioxidant effects, regulate fat excretion, soothe inflammatory processes (pimples and acnes).

4.10.

Title **Device for Dialysis**

Authors **Laschi. A. Mihai**

Patent no. RO 122077

Description The invention refers to a device for dialysis, used to produce a magnetic field, used for the treatment of the blood and of the liquid in the infusions, surgical procedures of transplant, limiting the effects of rejecting in the process of cleaning the organism of toxic substances, but also for the equilibration of the organism.

4.11.

Title **Method of treatment of chronic pharyngotonsillitis**

Authors Amer Azman Rabah, Vlaimir Popa, Victor Ghicavîi, Sergiu Vetricean, Amer Larisa.

Institution **USMF "N. Testemițanu", Catedra farmacologie şi farmacologie clinică**

Patent no. MD3836 G2

Description Method of treatment of chronic pharyngotonsillitis consists of using 1.5...2 hours before the meal of the gargle with a solution of nucina, dissolved with physiological solution in a ratio of 1:7...1:10 and ozonized

with ozone in concentration of 8000...12000μg/l for 3...5 min. Then, with a strong jet of the same solution, but not ozonized, is supplying the gaps of the tonsils, the treatment is carried out once a day for 10...15 days, twice a year.

4.12.

Title	**Anti-inflammatory remedy in hemorrhagic shock**
Authors	Anatolie Vişnevschi, Victor Ghicavîi, Vasilie Lutan.
Institution	**USMF "N. Testemiţanu", Catedra farmacologie şi farmacologie clinică**
Patent no.	MD4004 C2
Description	Using diethylphosphat-S-ethyl isothiouronium as anti-inflammatory remedy in hemorrhagic shock

4.13.

Title	**Preparation with regenerative and cytoprotective properties**
Authors	Victor Ghicavîi, Vadim Gavriluţa.
Institution	**USMF "N. Testemiţanu", Catedra farmacologie şi farmacologie clinică**
Patent no.	Pending MD Nr. 5404
Description	"Doresan" - is a plant product produced by the combination (1:1) of pumpkin seed oil with grape seed oil, with expressed antioxidant, cytoprotective, regenerative and hypolipidemic properties.

4.14.

Title	**Aboriginal drugs**
Authors	Victor Ghicavîi, Nicolae Bacinshi, Ecaterina Stratu, Vadim Gavriluţa, Ina Pogonea, Lilia Podgurschi, Ludmila Bumacov, Gheorghe Guşuilă, Vladimir Topciu, Ianoş Coreţchi, Roxalana Bobîc
Institution	**USMF "N. Testemiţanu", Catedra farmacologie şi farmacologie clinică**
Patent no.	Pending
Description	Aboriginal drugs

4.15.

Title **Apiphytotherapeutical products: apiimunomod, apiimunostim, apiimunostim forte, apiregya**

Authors Andrițoiu Călin Vasile*, Andrițoiu Vasile**

Institution ***Technical University „Gheorghe Asachi" Iasi,**
****S.C. Stupina S.R.L.**

Patent no. WOXXX12345 / Patent application No. A/01242/2010

Description

The invention proposes a new kind of apitherapy products stabilized in a biological environment (honey) which throughout its glucidic content represents a medium in which the other apitherapy compounds may be preserved for a long period of time, without decreasing their therapeutical value.

Advantages: the products are obtained from non-polluted sources, using a non-polluted technology, simple and easy to adapt to industrial production conditions; the composition of the new apiphytotherapeutical products assures the sinergistic presence of calcium and other compounds that regulate its intestinal absorbtion and metabolization; the new apiphytotherapeutical products contain compounds that have a certified protective and regenerative potential at the level of liver; the presented products contain substances that regulate the activity of the hypothalamic hypophyseal gonadal axis, the new products contain homones and/or forerunners, the apiphytotherapeutical products contain all the chemical constituents of the cell, of the extracellular matrix or their forerunners, thus participating to the construction, protection and cellular division processes; the innovative recipes contain substances that act as neurotransmitters or as forerunners; the new apiphytotherapeutical products contain antioxidant substances, that act against the free radicals; the presented products contain anti-inflammatory, antibacterial, antiviral, anti-tumor compounds; the inovative products present a favorable conjuncture on the present commercial market, due to the lack of products having a protective and regenerative potential at the level of liver based on apitherapy and phytotherapy compounds included in ecological environments.

4.16.

Title **New technologies of antimicrobial preparations obtaining from spirulina biomass**

Authors Rudic Valeriu, Batir Ludmila, Bulimaga Valentina, Gulea Aurelian, Lozan-Tîrşu Carolina

Institution **State University of Moldova.**

Patent no. Patent № MD 4043, MD 4069, MD 167, MD 4026

Description The technologies of obtaining of antimicrobial preparations from spirulina biomass cultivated in the presence of new coordination compounds of Cu(II) were elaborated.

4.17.

Title	**Correlatives and complementary experimental models for the development of antiageing dermatocosmetic product**
Authors	Laura Olariu Brandusa Dumitriu
Institution	**SC Biotehnos SA**
Patent no.	pending
Description	Despite the exponential develop of cosmetics with pharmaceutical activity, appropriates methods to quantify the effects are not yet established. The anti-ageing claim is a widespread effect for many skin care products, but usually a few test were done to scientific prove this action. We assist to an aggressive publicity which sometimes is not based on relevant investigations concerning the ingredients toxicity /efficacy profile, the cosmetic legislation being still permissive from this point of view. We design an assembly of instrumental methods, comparative and correlative, oriented to prove the ANTIAGEING effect and the specific target action of an ingredient: fibroblasts proliferative status, intracellular Calcium mobilization, molecular basis for changes in collagen homeostasis (TGF-beta modulation), cellular oxidative stress. We create an algorithm of dermatocosmetic testing procedure starting with cellular investigative techniques, representative for skin disorders and having an end point at the final products formulation based on cellular changes induced by phytocompounds. Therefore, as an application, we define on molecular basis the therapeutic target of three compounds isolated from indigene medicinal plant: one could be an effective agent for wound healing (matrix remodeling action, controlling fibrosis), the others two acting as catalysts of structural proteins synthesis, important in chronological ageing. The implementation of a skin functional parameters scanning in respect of the active ingredients action will have a deep impact in the quality of final product formulation, a better treatment scheme for dermatological dysfunctions and rising performances for the new skin care anti-ageing ingredients – one of the main targets of "POS CCE ID 383 SMIS CSNR 6009 CTR 107/2010" project

4.18.

Title	**Obtaining Proceeding of a Herbal and Mushrooms Gemoterapic Preparation**
Authors	Ianculov Iosif, Botău Dorica, Ciulcă Sorin, Palicica Radu Dimitrie, Cucu Mioara, Franț Alexandra
Institution	**Banat's University of Agricultural Sciences and Veterinary Medicine Timisoara**
Patent no.	Patent application No. **A/00498 / 8.06.2010**
Description	The invention consists in a obtaining proceeding of a gemoterapeutic preparation to treat a wide range of diseases, such as: various cancer forms, insulin-and non-insulin-dependent diabetes, cardio-and cerebrovascular diseases, etc., containing a mixture of plant meristematic tissue extract (Momordica charantia, Arctium lappa and Vaccinium myrtillus) and button mushrooms extract (Agaricus bisporus, Pleurotus ostreatus and Lentinula edodes) in growth phase.

4.19.

Title	**Medicamentary compositions based on *in vitro* cultivated vegetal tissues for the treatment of non-insulin-dependent diabetes**
Authors	Botău Dorica, Ianculov Iosif, Sărăndan Horea, Lazar Alexandru, Tudor Constantin
Institution	**Banat's University of Agricultural Sciences and Veterinary Medicine Timisoara**
Patent no.	Patent application No. **A/00688 / 8.09.2009**
Description	The present invention concerns the development of a medicamentary compositions used in the treatment of non insulin-dependent diabetes. These compositions contain vegetal tissue powders from plants with hypoglucose properties: bitter melon, (*Momordica charantia*), white mulberry (*Morus alba*), blueberry (*Vaccinium myrtillus*) and burdock (*Arctium lappa*), which together operate an addition of pharmacodynamic action. The selected vegetal tissues from *in vitro cultures* (callus), under phitohormons, mineral and organic nutrient influences of artificial culture media, synthetize the specific active principles of plants in the large amount and these can be used succesfully to obtain pharmaceutic preparations as from whole plants .

4.20.

Title	**Heteronuclear Iron Clusters and Natural Alkaloids as New Powerful anti -TB drugs**
Authors	Melnic S., Prodius D., Şova S., Turta C.; Macaev F., Stângaci E., Duca D., Duca Gh.,
Institution	**Institute of Chemistry, Academy of Sciences of Moldova**
Patent no.	Nr. **3942** MD, nr. **4009** MD.
Description	The invention relates to iron and cobalt complexes from the class of μ_3-oxo-coordinative clusters on base of 2-furoic acid with anti-tuberculous activity. Summary of the invention consists in the synthesis of hetero-nuclear compounds of formula **$[Fe_2CoO(C_5H_3O_3)_6(L_1)(L_2)_2]$**, mani-festing *Mycobacterium tuberculosis* culture growth inhibition properties. The active compound of the formulation is alkaloid 1-methil-4-(N-methylaminobuttil-4)-β-carboline derived from *Carex brevicollis DC (Cyperaceae)*

4.21.

Title	**Process for Extraction of Glaucine Halogene Hydrates from *Glaucium flavum***
Authors	Dragalin I., Barbă A., Mironov G., Colţa M., Ciocârlan A.
Institution	**Institute of Chemistry, Academy of Sciences of Moldova**
Patent no.	**Nr. 4056 MD**
Description	The invention relates to processes for extraction of biologically active compounds from plant raw material for pharmacological purposes , in particular to a process for extraction of glaucine halogene hydrates from *Glaucium flavum*

4.22.

Title	**Toothbrush with storage tank meant for oral hygiene**
Authors	Feichter Adalbert Marius
Institution	-
Patent no.	Patent application RO No. 121580/2007
Description	The main innovative element of the invention is the gearing system to force the toothpaste from the tank. The advantage of the new innovative toothbrush is represented by the autonomy and the efficiency in oral hygiene of teeth and tang and the toothpaste economy.

4.23.

Title	**Procedure for obtaing of oil nanodispersion with regenerative capacity**
Authors	Bogdan Alexandru HAGIU, Ion SANDU, Violeta VASILACHE, Vasile TURA, Ionel MANGALAGIU, Constantin FILOTE, Andrei Victor SANDU
Institution	**Romanian Inventors Forum** **Ştefan cel Mare University of Suceava**
Patent no.	**Pending RO OSIM A/01216/26.11.2010**
Description	The invention refers to a procedure for obtaining on oil nanodispersion with regenerative capacity for tissues, by stimulation of Menzenchimal and hair folicle STEM cells. The procedure uses sunflower oil (refined, neutralized and sterilized) for injection use, in which is dispersed coloidal silver (5-10 nm at 2,5,…5,0 ppm). The mixture is poured in glass ampoules of 1,2 or 3 grams.

4.24.

Title	**Artificial Halochambers**
Authors	SANDU Ion, STIRBU Catalina, CANACHE Maria, LUPASCU Tudor, CHIRAZI Marin, SANDU Ioan Gabriel, STIRBU Catalin, SANDU Andrei Victor, VASILACHE Viorica
Institution	**Romanian Inventors Forum**
Patent no.	Pending **AGEPI Files:** a2009005252/2009, A2009005269/2009; a2009005257/2009 **OSIM Files:** A200900898/2009, A200900897/2009; A200900899/2009
Description	The invention refers to a static artificial halochamber for multiple users, which uses dry aerosols of NaCl and other salts with prophylactic purpose and for treatment of respiratory diseases, but also for improvement of respiratory/cardiac apparatus and neuro-psiho-motric parameters, of persons with intense physical activity. The invention uses diaphragms that cover the walls of the room. The room is airtight and the climatic parameters are monitorized. The entrance is done trough an anteroom.

4.25.

Title	**Powder with hemostatic and regenerative capacity**
Authors	HAGIU Bogdan Alexandru, SANDU Andrei Victor, LUPAŞCU Tudor, CHIRAZI Marin, MANGALAGIU Ionel, SANDU Ion, CIOBANU Mihail, VASILACHE Viorica
Institution	**Romanian Inventors Forum**
Patent no.	Pending
Description	The invention consist in a powder functionalized with nanostructural silver, specialized in tegument regeneration, esspecially the ones with hair, by stimulation of mezenchimal STEM cells of hair follicles. It is biocompatible and treats open wounds and burns. The powder has a high hemostatic, antiseptic, healing and regenerative capacity, because uses as support pharmaceutical fibrin or thrombine (65...90%) mixed with sulphamide, anestezine, lactose and magnezium carbonate. After that coloidal silver (99.95% and 10...80 nm particles size) is pulverized at a concentration of 10 to 20 ppm.

4.26.

Title	**Mediums for cryopreservation of human sperm**
Authors	Boronchuc G., Roşca N., Balan I., Cazacov Iu., Bucarchuc M., Mereutsa I.
Institution	**The Institute of Physiology and Sanocreatology of the Academy of Sciences of Moldova**
Patent no.	Patent MD 58, 201
Description	Due to selected components and proposed proportoin , the cryopreservation mediums assure the stability of spermatozoa's membranary structures curing the cryopreservation process. The mediums allow fit\rm increasing of sperm's physiological indexes after thwing similar to native sperm, assuring a high quality of donor 's reproductive material. These findings could be applied in sanocreatology, cryiobiology and criomedicine.

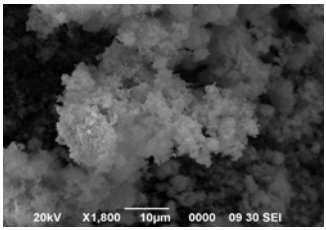
4.27.

Title	**Splint With Connector**
Authors	Vladimir Levchenko
Institution	**Chemistry Department Of The Lomonosov Moscow State University**
Patent no.	RU 82109
Description	For the first time it is developed in Russia not having analogues in the world «Splint with connector». The invention concerns biology and medicine area and can be used in the postoperative period at endonasal operations on intranasal structures (partition, nasal bowls etc.). Splint it is executed from silicon a material which is in turn coating nanostructural by carbon polymer with thickness - 50 nanometers. The new product solves a problem of division of surfaces of a mucous membrane of a partition and lateral walls of a cavity of a nose for the purpose of formation prevention синехий. In product the medico-technological decision creating new medical technology of conducting period and consisting is reached that upon termination of treatment in a nose cavity enter bactericidal splint, and it connector fix outside to a back of a nose a plaster. Operation time decreases, the hypostasis of a mucous membrane of a cavity of a nose decreases, it is not required removals of seams in the postoperative.

4.28.

Title	**Anionic clays with magnetic components and preparation procedures.**
Authors	CHIRIAC Horia, LUPU Nicoleta, GABURICI Maria.
Institution	**National Institute of R&D for Technical Physics**
Patent no.	Patent application No. a 2010 00319 / 09.04.2010
Description	The invention refers to two preparation procedures for anionic clays (known also as Layered Double Hydroxides or LDH) with magnetic components (Fe, Co, Ni or/and their oxides or alloys) intercalated with drugs, pesticides or other biocides, with growth stimulators or enzymes. The magnetic anionic clays are designed to be used for biomedical and agriculture applications and for magnetic and chemical sensors. The new anionic clays have double layered structures, a specific saturation magnetization of 17...93 e.m.u./g and specific surface areas of 48...98 m^2/g.

Applications: (bio)medicine; agriculture; cosmetics; cleaning of the waste waters, as admixture in concrete for buildings.



SEM image of MgAlLDH:Fe_3O_4 (1:3)

4.29.

Title	**CELULAR AND MOLECULAR BIOLOGY without Na^+ - K^+ ionic pump**
Authors	PÂRVULOIU M. Constantin
Institution	**-**
Patent no.	Pending
Description	The book i wish to get your attention concerning my ten inventions presented in this book. According to the theories conception concerning the cellular and molecular biology without Na+ - K+ ionic pump, this work brings important clarifications regarding: - Regulation of Genes Activity at Eukariotes; - Excitability of the Nervous Cell; - Cancer Cell; - Basal Metabolism; - Acido - Basic Homeostatis; - Functioning of the Cell Membranes; - Transport Function of the Cell Membranes; - Other.

4.30.

Title	**Phytotherapeutic agent for treating diabetes mellitus**
Authors	A.Crivoi, I.Bacalov
Institution	**Moldova State University**
Patent no.	Patent No. MD-3620
Description	That the agent for treating diabetes mellitus includes decoction of Arctium lappa and Cichorium intybus root mixture, aboverground parts of Polygonum aviculare and Onopordum acanthium.

4.31.

Title **The method of endoscopical papilectomia**

Authors GHIDIRIM Gheorghe, MD, MIŞIN Igor, MD, ISTRATE Viorel, MD; BODRUG Nicolae, MD,

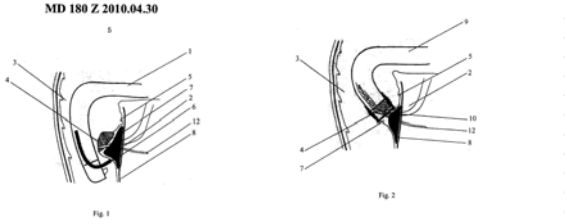
Institution **National Scientific-Practical Center of Emergency Medicine**
State Medical and Pharmaceutical University"N. Testemitanu"

Patent no. MD 180 Z 2010.04.30

Description

The invention relates to medicine, namely endoscopic surgery and is destined for the excision of flat benign and malignant neoplasm of the major duodenal papilla.

The method, according to the invention, consists in that it is introduced the endoscope up to the level of the major duodenal papilla, it is marked the resection line digressing by 2 mm from the tumor margin, then in the sub mucous layer, in the tumor region, is injected a sterile solution up to the formation of a liquid layer separating the mucosa from the muscular layer. It is removed the endoscope, it is introduced the pan endoscope and it is aspirated the tumor together with the margin of mucosa up to the marking line into its distal nozzle up to the obtaining of a more space occupying lesion, then it is put on its base a tread rubber ring, afterwards it is removed the pan endoscope, it is introduced the endoscope, it is applied the hot snare on the base of the obtained mass and it is resected the tumor.



4.32.

Title **The method of closing the defect of gastro duodenal mucosa**

Authors GHIDIRIM Gheorghe, MD, MIŞIN Igor, MD, ISTRATE Viorel, MD; BODRUG Nicolae, MD,

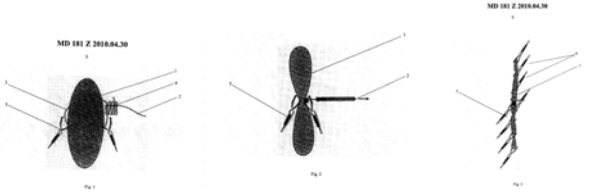
Institution **National Scientific-Practical Center of Emergency Medicine, State Medical and Pharmaceutical University"N. Testemitanu"**

Patent no. MD 181 Z 2010.04.30

Description

The invention relates to medicine, namely endoscopic surgery and is destined for the endoscopic closure of big gastroduodenal mucosa defects after endoscopic removal of precancerous masses or incipient cancer.

The method, according to the invention, consists in that it is introduced a double-channel endoscope, into onechannel of which is placed a node pusher, made with a metal tip with thread, the free end of which is withdrawn outside through the proximal end of the channel, and on the distal end is made a snare with Roeder's knot. Then on the mucosa defect is applied the above-mentioned snare, on the opposite margins of the defect there are applied 2 or 4 clips, fixing the thread of the snare, then it is tightened the snare by the free end of the thread up to the maximum approach of the defect's margins, afterwards there are applied additional clips for the complete closure of the defect.



4.33.

Title **The algorithm of rapid medical triage TRAMIN**

Authors CIOBANU Gheorghe, MD, PÎSLA Mihail, MD, OSTAFICIUC Radu, MD

Institution **National Scientific-Practical Center of Emergency Medicine, Disaster Medicine Center**

Patent no. MD 12/2867 seria OS 2011.01.05

Description

This innovation refers to medicine, especially for disaster medicine and emergency medical service. In disaster settings it is impossible to provide complete medical assistance to all disaster survivors. Due to this fact efforts should be concentrated to provide emergency medical care primarily to the most affected victims, but who have a real chance of survival, if they received care. You have to randomize this group of victims, among those, who will survive without (or minimal) medical care, those, who will die despite provided medical care, that will consume many efforts, time and medical resources.

The process of determining the priority of patients', allocation treatment and evacuation based on the severity of their condition is defined as Triage. The algorithm TRAMIN –Rapid Triage in Low Volume is applies in cases when, definitely, there is no more time than 1-2 minutes for triage of one victim

(number of victims substantially exceeds medical personnel capabilities, the area should be immediately left due to imminent risks)

The core of algorithm TRAMIN consists of rapid classification of victims, using simple tools to estimate they're status based on 4 criteria: ability to move independently, the state of awareness, breathing and circulation.

4.34.

Title **Triage medical tag**

Authors CIOBANU Gheorghe, MD, PÎSLA Mihail, MD, OSTAFICIUC Radu, MD

Institution **National Scientific-Practical Center of Emergency Medicine, Disaster Medicine Center**

Patent no. **MD 12/2867 seria OS 2011.01.05**

Description

This innovation refers to medicine, especially for disaster medicine and emergency medical service. The medical triage sheet (further - medical sheet) is a primary document for medical log, used in cases of incidents with multiple victims or in cases of disaster. The medical sheet is provided for: registration of the victim, to document the triage process and triage decision making in the disaster area, during evacuation, in the health care institution, where victims has been evacuated.

At the same time the medical sheet recorded some sings of vital functions that reflect the victim's medical state (respiration, pulse, blood pressure) and the volume of medical care provided in disaster area (focus), during the evacuation.

The triage decision is notified by colored stripes (the component of medical sheet). Depending on the urgency of needed medical assistance, each of them corresponds to some triage group, specifically:

- Red stripe – absolute emergency
- Yellow stripe – relatively emergency
- Green stripe – minor emergency
- Gray stripe – dying
- Black stripe –died.

The medical sheet allows to be done distinct triage in:

- Prehospital settings
- Hospital settings

Each medical sheet has an ID number, printed on the sheet, on each colored stripe, on the sheet butt.

For shortening the time spent to fill the sheets some items contain standards answers, which should be circled.

4.35.

Title	**Radiant product for cell regeneration**
Authors	Liviu Andronovici
Patent no.	Pending RO CB - A/00383/10
Description	Product (jewelry) that acts on cells through biowaves that can produce the regeneration of human body cells through the glandular system.

4.36.

Title	**Radiant pyramid**
Authors	Liviu Andronovici
Patent no.	Pending RO CB - A/00536/10
Description	The invention is a product meant to stimulate internal energy, acting on the nervous system cells, energizing them, as well as on the venal circulatory system, and acting directly on the entire human body

4.37.

Title	**Radiant Mirror For Reballancing**
Authors	Liviu Andronovici
Patent no.	Pending CB - A/00340/10
Description	Mirror that acts on cells, activating and energizing the glands, organs or the arterial circulatory system, with an indirect action on the human body as a whole.

4.38.

Title	**Radiant crystal**
Authors	Liviu Andronovici
Patent no.	Pending CB - A/01067/10
Description	Product meant to stimulate internal energy, which acts on cells, activating and energizing the glands, organs or the arterial circulatory system, acting directly on the entire human body. Its benefits are based on a complex formula and radiation of a quartz crystal glass, of conic shape.

4.39.

Title	**Radiation Protection Product**
Authors	Liviu Andronovici
Patent no.	Pending CB - A/00989/09
Description	The invention consists in a product for protection against harmful electromagnetic radiation generated by the computer or the mobile phone, with direct action on the entire body.

4.40.

Title	**Antistress Product**
Authors	Liviu Andronovici
Patent no.	Pending CB - A/00904/10
Description	Phytotherapeutic powdery product, with a sedative action under stress, while also being a strong reminelizer, antiasthenic and antiallergic, used in natural therapy, for all ages.

4.41.

Title	**Anti Diabetus Melitus Phytotherapeutic Product**
Authors	Liviu Andronovici
Patent no.	Pending CB - A/00983/10
Description	Phytotherapeutic powdery product, destined to treat hepatitis and diabetes, while also being a strong reminelizer, glandular activator and detoxifier fo the human body, in natural therapy

4.42.

Title	**Body Detox Product**
Authors	Liviu Andronovici
Patent no.	Pending CB - A/00568/09
Description	Phytotherapeutic powdery product, destined to detoxify the entire human body, used in natural therapy, for all ages.

4.43.

Title	**Colon detox solution**
Authors	Liviu Andronovici
Patent no.	Pending CB - A/00524/09
Description	Product formed of two liquid solutions for colon detoxification, based on Aloe, destined for use in the field of Phytotherapy, for all ages.

4.44.

Title	**Excess body-fat disolving product**
Authors	Liviu Andronovici

Patent no.	Pending CB - A/00438/10
Description	Phytotherapeutic product, destined to remove excess fat and loss of weight, used in na**tu**ral therapy, for all ages.

4.45.

Title	**Antiastenic and antihepatitis phytotherapeutic product**
Authors	Liviu Andronovici
Patent no.	Pending CB - A/01064/09
Description	Phytotherapeutic powdery product, destined to treat hepatitis, migraines and fatigue, while also being a strong reminelizer, intestinal vasodilatory and hypoglycaemic for the human body, used in natural therapy, for all ages.

4.46.

Title	**Plant based ointment salve with cicatrizing effect**
Authors	Liviu Andronovici
Patent no.	Pending CB - A/00731/09
Description	Phytotherapeutic ointment, based on plant extracts rich in active principles, astringent, healing and emollient, used in natural therapy, for all ages.

4.47.

Title	**Energizing shampoo**
Authors	Liviu Andronovici
Patent no.	Pending CB - A/00738/09
Description	Shampoo solution, based on natural plant extracts, which acts on the scalp and is meant to remineralize, energize and calm the skin, recommended for all hair types

4.48.

Title	**Tooth paste for preventing dental decay and gum infection**
Authors	Liviu Andronovici
Patent no.	Pending CB - A/00526/09
Description	The invention refers to dentistry, namely to a curative-prophylactic substance for dental and oral cavity care and may be used for prophylaxis and complex treatment of caries, inflammatory diseases of gingivae.

4.49.

Title	**Plant Based Cream With Cicatrizing Effect**
Authors	Liviu Andronovici
Patent no.	Pending CB - A/00765/09
Description	Cream with herbal extracts, with peripheral vasodilatory action, moisturizing and healing, used in natural therapy.

4.50.

Title **A new method for calculation acceleration in medical applications of diffuse optical tomography**

Authors Tomasz GRZYWACZ, Jan SIKORA

Institution **Electrotechnical Institute, Department of Electric Traction, Warsaw, Poland**

Patent no. Pending

Description

DOT is an imaging modality with the aim to recover the spatial distribution of the optical parameters, such as absorption and scattering coefficients, and to present them as 3-D images to the clinician. The optical parameters are related to physiologically relevant properties of blood and tissue oxygenation levels.

The use of near-infrared light for imaging is quite difficult since it is strongly scattered by tissue, unlike the radiation in CT, which generally travels in straight lines through the body. Diffuse light propagation complicates image reconstruction. Light travelling between two points on the surface spreads out over a significant volume inside the tissue and therefore carries very little spatial information. To maximise the information contained in the measurements, one uses multiple detectors to sample the light emerging over a large surface area from the body for each source.

DOT problem is highly nonlinear, and analytical solutions exist only for a limited number of simple geometries. Previous numerical solutions of the forward problem in DOT were based on a finite element method (FEM) as well as various hybrid approaches combining FEM with stochastic methods. Our proposal is to combine BEM with domain decomposition methods in order to solve this problem. This two methods are complementary. The system of equations derived from BEM describes distribution of the state function over a particular area. BEM provides not only potential of the state function but also its normal derivative in each node of the area. This property makes BEM really convenient to cooperate with domain decomposition methods. They are based on transfering boundary conditions (Dirichlet, Neumann or mixed) between successive regions of the decomposed area. Authors applied algorithms from two main groups of domain decomposition methods: overlapping and non-overlapping ones. A diffusion approximation of the light propagation model based on Helmholtz equation was solved in spherical geometry. The results show significant reduction in computation time while solving forward problem in DOT but only for huge problems.


EURO
INVENT

CLASS 5

Industrial and Laboratory Equipments

5.1.

Title **Expert Systems for Heating System Control**

Authors VIZUREANU Petrică

Institution **„Gheorghe Asachi" Technical University of Iasi**

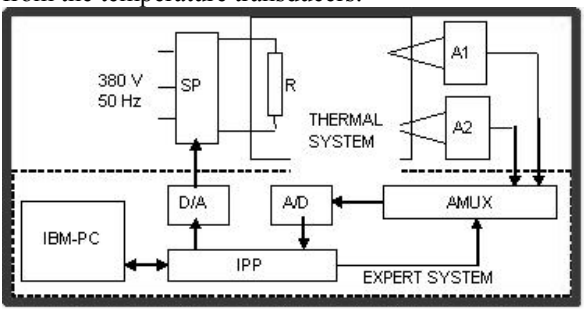
Patent no. Patent application No. A/00554/21.07.2008

Description

The **expert systems** are numerical structures of regulating and automat control using an operation system, a programming environment and a series of execution organs that fulfill promptly the commands of the expert systems.

The **heating system** represents the totality of the equipment and parameters of the thermal process concerning at the achieving of a heating region according to the technological conditions and these of the material to be processed.

The **power source SP** can be constituted in a steady state convertor type M3, ensuring a three phase supplying of the thermal system with a continuum voltage. **Heating elements R** ensures the temperature of the thermal process according to the technological needs**. Measurement amplifiers A1, A2** used to increase the signals power from the temperature transducers.



5.2.

Title	**Procedure for heat transfer enhancement in oval electrical furnaces used for medium temperature heat treatment**
Authors	Minea Alina Adriana
Institution	**Technical University Gh. Asachi from Iasi**
Patent no.	RO - 125336 A2/2010
Description	The patent refers at an enhancement procedure for heat transfer processes in oval electrical furnaces used for medium temperature heat treatment, in order to improve some alloys properties by using a light metallic device with adjustable radiant panels (2), disposed symmetrical on side walls of the heated chamber, on different angles different from 90°. These panels permits modifying the geometry of the chamber and the profile of heat transfer through concentrated the heat into the active zone. The geometry correction works in the respect of heat treatment diagrams and it leads to minimizing the heating time through reducing the charge stationary time inside the furnace and, therefore, at reducing energy consumption per product. ***Applications:*** furnace chamber re-designing is leading to correction in heat treatment regime and, most important: to minimizing the energy consumption of the heating process.

5.3.

Title	**Technics for measurement the impedance components**
Authors	Nastas Vitalie, Nicolaev Pavel
Institution	**Technical University of Moldova**
Patent no.	MD3463, MD3689, MD3949, MD3961, MDs195, MDs279
Description	The cycle of inventions contains: a method for

measurement of impedance components by the method of simulated resonance (MD3949), a Cartesian coordinates impedancemeter (MDs279), two converters of impedance with different features, used as reference elements (MD3689, MDs195) and also application of the proposed techniques for measurement resistance of the glass covered microwire in the manufacturing processes (MD3463, MD3961).

5.4.

Title	**Equipment for extraction and transport through liquid membranes (pertraction)**
Authors	Dan Cascaval[1], Anca-Irina Galaction[2], Elena Folescu[1]
Institution	**[1]Technical University „Gheorghe Asachi" of Iasi; [2]University of Medicine and Pharmacy „Gr.T. Popa" of Iasi**
Patent no.	Brevet RO 119690 B1/28.02.2005
Description	The equipment could be used for separation of the bioactive compounds, with pronounced chemical and thermal lability, by extraction and transport through liquid membranes, without or with addition of a carrier (free or facilitated pertraction). This equipment does not require the use of tensides for stabilizing the liquid membrane, thus increasing the purity of the pertracted compounds.

5.5.

Title	**Method for increasing the antimicrobial activity of gentamycin**
Authors	Anca-Irina Galaction[1], Dan Cascaval[2], Alexandra-Cristina Blaga[2], Madalina Postaru[1]
Institution	**[1]University of Medicine and Pharmacy „Gr.T. Popa"**

	of Iasi, [2]Technical University „Gheorghe Asachi" of Iasi
Patent no.	Pending RO 00666/31.08.2009
Description	The patent describes the method for increasing the therapeutical efficiency of gentamicin by removing the gentamycin C1 from the biosynthetic mixture using the facilitated pertraction

5.6.

Title	**Graphical Interface for Modeling of Interphasic Mass Transfer in Bioreactors**
Authors	Marius Turnea[1], Anca-Irina Galaction[1], Dan Cascaval[2]
Institution	**[1]University of Medicine and Pharmacy „Gr.T. Popa" of Iasi; [2]Technical University „Gheorghe Asachi" of Iasi**
Patent no.	Pending
Description	The invention relates to building a graphical interface using Matlab software to describe the oxygen mass transfer efficiency in systems gas-liquid-solid in stirred bioreactors. By designing this database the previous results storage, real-time simulation of new processes and comparison between the results obtained with the existing ones are allowed.

5.7.

Title	**Bioreactor of „basket" type for immobilized biocatalysts**
Authors	Anca-Irina Galaction[1], Dan Cascaval[2], Marius Turnea[1], Roxana Rotaru[2], Anca Lupasteanu[2]
Institution	**[1]University of Medicine and Pharmacy „Gr.T. Popa" of Iasi, [2]Technical University „Gheorghe Asachi" of Iasi**
Patent no.	Pending
Description	The invetion consists on a new bioreactor with fixed bed of immobilized cells or enzymes. The „basket" bed placed around the impellers, as well as the specific positions of the impellers on the shaft, allow to reaching high efficiency of the substrate mass transfer and bioconversion processes.

5.8.

Title	**Three rolls calender for simulation of the calendering of polymeric materials**
Authors	Fetecau Catalin, Stan Felicia
Institution	Dunarea de Jos University of Galati, Romania
Patent no.	**RO122981/2010**
Description	The present invention refers to a laboratory equipment for simulation of the calendering of polymeric materials. The technical problem solved by the present invention is related to the sheet thickness reduction. In order to achieve the final sheet thickness, the gap between the rolls is adjusted by means of two calendar rolls which are moving in a radial direction within the range of 0÷5 mm. The radial movement of the rolls is controlled by a micrometric feed system. The advantages of the proposed three-rolls calender are: - It is the first laboratory equipment which allows the simulation of the calendering of polymeric materials; - It has a simple and robust design, and allows the adjustment of the distance between the calender rolls.

5.9.

Title	**Method for uniform nickel electroplating on a cooper base**
Authors	Violeta VASILACHE, Ion SANDU, Constantin FILOTE, Andrei Victor SANDU
Institution	**Ştefan cel Mare University of Suceava** **Romanian Inventors Forum**
Patent no.	Pending RO A/00847 and 00848/17.09.2010
Description	The patent consists in a method to achieve a uniform nickel layer by electroplating of a copper or a coppery iron support in the presence of polyvinylpyrrolidone, used in mechanical engineering as active surface agent. The method for uniform nickel electroplating of a copper or a coppery iron support is characterized by use of Watts

baths to achieve thin passivated layers. Furthermore, it uses $NiSO_4 \cdot 6H_2O$ - 240 g/L and $NiCl_2 \cdot 6H_2O$ – 45 g/L acid solutions, 30 g/L boric acid as buffer system and 5 g/L polyvinylpyrrolidone as active surface agent, with the average temperature range between 50-65°C and the current densities range between 300 – 500 mA.

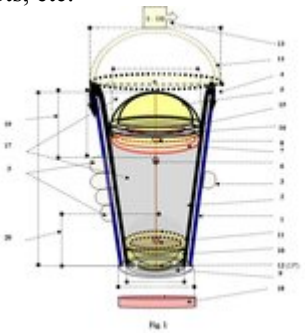
5.10.

Title	**Dinamic hydrofroming equipment for tubing with high pressure and vibrations**
Authors	Mircea FRUNZA, Boris PLAHTEANU
Institution	**National Institute of Inventics Iasi**
Patent no.	Patent application No. 00581/2010
Description	The invention relates to a dynamic hydroforming equipment for tubes with high pressure and vibrations for the production of semi-sheets through plastic deformation under pressure in a dynamic system. The problem solved by the invention is introduction in hydraulic medium of is the pulse frequency equal or near to the specific frequency of the hydroforming which stimulate the slipping crystalline plans, reduces the force needed deformation and therefore the pressure needed Hydroforming.

5.11.

Title	**BIONIC EYE - COMPACT MODEL**
Authors	Mariana Daniela Manu, Gheorghe Pleşu
Institution	***"Academician Ion Haulică"* Research Institute of the Apollonia University Iaşi, "*Gheorghe Asachi*" University Iaşi**
Patent no.	OSIM no. **A/00293/4.04.2011**
Description	"Bionic eye-compact model" registered at OSIM Bucharest, is a device with multiple destinations: bionic simulation of the normal human eye and direct observation of images

formed on the "macula retinal" as upright, in color, the dynamic, three-dimensional; this is the first device in the world for the study of biophysical mechanism of human vision by introducing multidisciplinary studies in biophysics, new knowledge in the field of lasers, nonlinear optics holografiei and required to complete, correction of errors in the creases already existingtheoretical and experimental ophthalmology, physiology and pathophysiology. Other variants of the model can be applied nanotechnology, with the final development of artificial eyes for the blind, eye for humanoid robots, etc.



5.12.

Title **EKO – CLEAN**

Authors **Bojan Ciglenecki**

Institution **Croatia**

Patent no. Patent Application number HR P20070490A

Description EKO-CLEAN is a system for electrochemical cleaning of the field surface of an electromotor or generator stator. During the machining of the stator field, some fields can be damaged due to poor material or low-quality tools. Damage is manifested as a short circuit between some dynamo plates of stator fields, caused by attaching material during machining, insulation impairment or heaping of particles. Testing the stator by means of a thermovisual camera leads to overheating of some fields, which is not allowed, because it essentially affects the characteristics of a machine. With the EKO-Clean system the damaged fields are treated with electric current and electrolyte, whereby such spots are cleaned. The surface of the fields is smoothed and in the

process the particles are withdrawn which cause short circuit between the plates.

CLASS 6

Mechanical Engineering - Metallurgy

6.1.

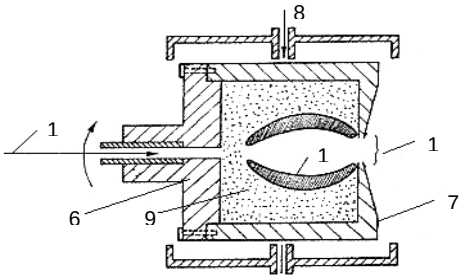
Title	**Nontraditional technology of small gear wheels fabrication**
Authors	Bostan Ion, Ionescu Florin, Dulgheru Valeriu, Dicusară Ion, Bodnariuc Ion, Cozma Ion
Institution	**Technical University of Moldova**
Patent no.	MD 3595, 3596, 3623/2008
Description	The inventions refers to the domain of processional transmissions and technology of its fabrication. To fabricate small and very small toothed wheels with convex-concave profile a practically new theory was elaborated using a tool which performs precessional motion. In connection with this a special device was elaborated based on nontraditional technology of fabrication by electroerrosion with solid or filiform electrod.

6.2.

Title	**Technologies of gear wheels fabrication by plastic deformation**
Authors	Bostan Ion, Dulgheru Valeriu, Trifan N
Institution	**Technical University of Moldova**
Patent no.	MD. 3561, 2791, 2703
Description	The invention relates to the workpiece surface strengthening by plastic deformation. The process for knurling the bevel wheel teeth with strengthening of their surface is carried out by several taper rollers of plastic deformation. Strengthening of the teeth surface is carried out by means of alternating microdisplacements. Novelty consists in that the plastic deformation of the bevel wheel teeth takes place under the simultaneous action of ultrasounds and high-voltage currents.

6.3.

Title	**Solar Furnace for Materials Processing**
Authors	Vizureanu Petrică, Predescu Andrei
Institution	**„Gheorghe Asachi" Technical University from Iasi, Romania**
Patent no.	Patent application No. A/00553/21.07.2008
Description	The solar furnace can be used for materials processing by heating / melting / burning / purification, the thermal energy being obtained directly by solar energy. The solar furnace contains a rotative workspace / precinct (6), horizontally posted, cooled from exterior with water, the material to be processed being positioned in solar image focus. The materials processing can be done on protecting gas atmosphere.



6.4.

Title	**Process of effect on metal's structure and properties, device for its implementation**
Authors	V. Goch, N. Solovieva, D. Nifantiev
Institution	**Ukraine&Russian Federation**
Patent no.	RU pending
Description	A device of metals converter is intended to enhance the quality of the products' quality in foundry. This invention bears on the methods of effect on a metal and can be used in construction, power industry, oil-and-gas industry, mechanical engineering and metallurgy. The converter's engineering design represents a complex device: a cylinder with an open pouring cup at the top, which contains pictographic resonators (New Runes). The converter is made of low-carbon structural steel.

6.5.

Title	**Method of effectiveness characteristics' increasing of welding fabrication by means of using pictographic resonators and nanotechnologies**
Authors	V. Goch, N. Solovieva, D. Nifantiev
Institution	**Ukraine&Russian Federation**
Patent no.	RU pending
Description	Key advantage: complex (total) effect on the subjects and means of labor in the process of blanking and main manufacturing operations for manual arc welding. Main goal: enhancement of quality, improvement of the structure and properties of the metal of welded joints and structures in general.

6.6.

Title	**Method for vibrations attenuation attached to the hand-arm system of the human operator**
Authors	Mariana ARGHIR, Aurora Felicia POP
Institution	**Technical University of Cluj-Napoca**
Patent no.	Pending
Description	The method provides a new process of attenuation of vibrations which act upon the human operator's hand at work during processing on a machine tool. In the context of the method is established scheme mechanics, differential equations system written, which will give the solution by integration, for comparative arm-hand human with or without device attenuator attachment.

6.7.

Title	**Vibrations attenuator attached to the arm-hand human system**
Authors	Aurora Felicia POP, Mariana ARGHIR
Institution	**Technical University of Cluj-Napoca**
Patent no.	Pending
Description	A new device vibration attenuation hand-arm human operator during the production process. The device will be designed, dimensioned and realized in real conditions of work. Will be perform measurements of vibrations on the arm of a worker with or without the attached device.

6.8.

Title	**Boron – Carbon – Vanadium Process And Furnace For Parts And Machine Components**
Authors	VASILESCU Dan Dragos, CORABIERU Petrica, CORABIERU Anisoara, VELICU Stefan, Constantin BACIU, Mirela SOHACIU
Institution	**SC Procomimpex SRL** **"Gheorghe Asachi" Technical University of Iasi**
Patent no.	**RO 122971/2010**
Description	The patent refers at a process of hardening of machine parts and organs by boron –carbon – vanadium. The invention also refers to a furnace for realization of the process. According to the patent consists of: cover with a paste alloy parts; packaging components are in electrical furnace with a mixture granular; heating component to achieve a temperature of 900-1000 °C; maintain this temperature range for 1,5-2 hours; simultaneous cooling of the part and electric furnace to 300 °C. The furnace according to the invention includes a removable enclosure bordered by two walls. These walls allow working space narrowing. The removable walls are embedded: two graphite electrodes exhaust systems and a cap that is inserted thermocouples and measuring equipment.

6.9.

Title	**Process For Making Metal Parts By Surface Modified By Deposition**
Authors	CORABIERU Petrica, VASILESCU Dan Dragos, CORABIERU Anisoara
Institution	**SC Procomimpex SRL**
Patent no.	Pending **RO A00928/2009**
Description	The patent referes at a process making metal parts by surface modified by deposition. The process consists of: ante- treatment submission of parts; deposit thin layers of metal by electric discharge; number of successive layers is made of four; depending on the type of electrode used, successive layers can be: ickel, tungsten, carbon graphite or tungsten - cobalt; post - treatment quenching deposition is a high frequency

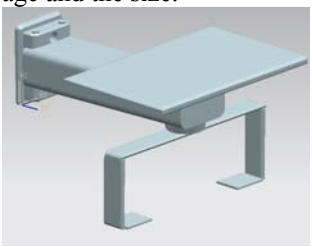
currents to a temperature of 860 °C.
Hard surface layers are obtained. The structure is martensite with primary and secondary carbides uniformly distributed.

6.10.

Title	**Method of Processing Steel Parts in The Induction Field**
Authors	CORABIERU Anisoara, CORABIERU Petrica, VASILESCU Dan Dragos
Institution	**SC Procomimpex SRL**
Patent no.	Pending RO A00920/2009
Description	The patent refers at a process for induction. The process consists of the following: packaging parts in boxes containing a mixture of hardening; centering packing boxes inside the inductor; induction heating of all: packing box - a mixture of hardening - part of the steel; getting hard surface layer and alloy as a result of structural changes. Hardening mixture consists of: 50% metal powders and 50% mixture of carburizing.

6.11.

Title	**TV Stand**
Authors	Berzacovici Lucian
Institution	**Faculty of Mechanical Engineering, Dunarea de Jos University of Galati, Romania**
Patent no.	Pending
Description	The TV stand was designed using the Siemens PLM software such as NX and FEMAP. The TV stand was designed taking into consideration the size of the TV, the type of the storage and the size.



6.12.

Title	**Intelligent system for the fabrication of glass-coated microwires**
Authors	Zaporojan S., Calmîcov I., Plotnic C., Larin V., Pavel V.
Institution	**Technical University of Moldova**
Patent no.	Pending
Description	Unlike a conventional casting plant, the proposed system is based on the technologies of machine vision and assures video monitoring of microwires' casting for the optimization of technological process. The realised control model offers a mechanism to estimate on-line the geometry of the metal-filled capillary and predict the evolution of the process of microwire casting.

CLASS 7

Buildings and Materials

7.1.

Title	**Carrier photostructurable of information**
Authors	Stefan Robu, Ludmila Vlad, Alexandru Prisacari, Elena Achimova
Institution	**Moldova State University**
Patent no.	Patent No. MD-352Y
Description	A new photostructurable carrier of information it was elaborated from copolymers of 9-carabazolylmethyltiiran with butyrate of glicydyl designated for registering holograms with argon laser λ=510 nm with a diffraction efficiency of 1,5÷2,0 times higher than those known in the related literature and achieving up to 40 %.

7.2.

Title	**Process and composite material for producing the retension aprons in centrifugal crushers**
Authors	Victor GEANTĂ, Ionelia VOICULESCU, Radu ŞTEFĂNOIU, Horia BINCHICIU, Radu Mihai NEGRIU
Institution	**SC SUDOTIM AS SRL Timişoara** **SC ECONET PROD SRL Bucureşti**
Patent no.	Patent Number RO125587-A0 / No. OSIM – A-00012/11.01.2010
Description	**The Manufacturing Process** of the composite metal material being used for producing the retention aprons in the centrifugal rotary crushers is characterized by the fact that a mixture of hard metallic carbides (with W, Ti etc.) and fused tungsten carbide, mechanically-milled and selected, are infiltrated inside a metal matrix based on Fe, Co or Ni. **The Infiltration Metal Matrix,** based on Fe, comprises carbide generating elements. **The Composite Metal Material** is made from a mixture of hard metallic carbides (with W, Ti etc.), mechanically-milled and selected and tungsten carbide, milled and melted, with a granulation of 200 – 1500 μm, infiltrated

with a metal matrix based on Fe, Co or Ni.
Applicability Domain: manufacturing of anti-wear resistance structures of the natural aggregates grounding installations.

7.3.

Title

Process and installation for producing powders of binary aluminium-magnesium alloys meant for making metal pieces of thixotropic structure

Authors

Horia BINCHICIU, Victor GEANTĂ, Ionelia VOICULESCU, Aurelia BINCHICIU, Radu ŞTEFĂNOIU, Emilia BINCHICIU, Radu Mihai NEGRIU

Institution

SC SUDOTIM AS SRL Timişoara

Patent no.

Patent Number RO125770-A0 / No. OSIM – A-00085/01.02.2010

Description

The Obtaining Process of the metal powders of Al-Mg alloys meant for the production of pieces with thixotropic structure, consists in an adequate dosing of the active Al solid wire and of the Mg-cored aluminium pipe, melting under a protective layer of cryolitic flux, followed by the continuous flowing of the alloy jet into the preforming chamber on a rotating drum, projecting the melt onto a deflective plate, which achieves the jet dispersion into pulverous particles which are then deposited onto the cooling collector bed in an inert atmosphere.
The Obtaining Process permits the producing of fibers and/or strips of alloys subjected to melt, just by reversing the direction of rotation of the preforming drum, without modification of the installation..
The Obtaining Installation comprises of two feeding mechanism for wire and for the cored pipe, which lead the components of the binary alloy with variable advance speeds to an induction-heated graphite crucible which is provided with a system of nozzles wherethrough the melted alloy flows in a laminar motion on a refractory

stainless steel drum in the preforming chamber protected by argon atmosphere, the melted alloy being then projected onto a deflective plate, where it is converted into drops which, after solidification, are deposited onto the cooling collector bed.
Applicability Domain: production of precursors for obtaining the parts with thixotropic structure.

7.4.

Title **Wear preventing shield with self-protection and process for making**

Authors Aurelia BINCHICIU, Ionelia VOICULESCU, Victor GEANTĂ, Horia BINCHICIU, Radu ŞTEFĂNOIU, Daniela IOVĂNAŞ, Emilia BINCHICIU, Radu Mihai NEGRIU

Institution **SC SUDOTIM AS SRL Timişoara**

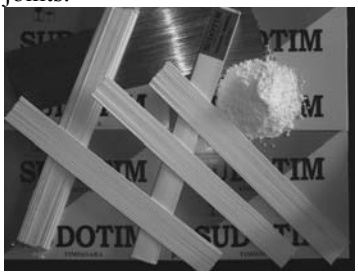
Patent no. ISI Web of Knowlwdge – Patent Number RO125760-A0 / No. OSIM – A-00138/15.02.2010

Description

The Wear Preventing Shield With Self-Protection consists of a support of sheet metal made of thermo-resistant steel wherein there are made channels forming a rhombus-shaped grid in which there are deposited by welding hard alloy layers with a crystalline grain orientation along the mechanical stress of the shield.
The Obtaining Process of the self-protection shield is a secvential multi-stage process type. The first stage consists in the obtaining of thermo-resistant steel support; in the second stage the support is positioned in the pump cooled welding device; in the third stage, there are made channels as rhombus-shaped grid wherein there are deposited hard alloys by multi-layer welding. In the fourth stage, the shield is stress-relieved and heat smoothed.
Applicability Domain: anti-wear protection of the active surfaces of the power plants fan mills.

7.5.

Title	**Low Hygroscopic Rods Coated With Silver Alloys Used For Brazing**
Authors	Aurelia BINCHICIU, Ionelia VOICULESCU, Victor GEANTĂ, Horia BINCHICIU, Radu ŞTEFĂNOIU, Emilia BINCHICIU
Institution	**SC SUDOTIM AS SRL Timişoara**
Patent no.	No. OSIM – A-00248/18.03.2010
Description	**The Coated Rods** used for brazing of the joints of same or dissimilar materials, made by extrusion on the silver - copper - zinc - tin alloy nude rods of some deoxidization coatings, are characterized by the fact that, in order to ensure a coated reduced hygroscopicity and a high rate of deposition, includes: addition of powders with ecological silver alloy which are the same type like the nude rod, powdered frit boric (boric glass), potassium hydroxide, plasticizer (CMC) carboxymethyl cellulose and binder (distilled water). **Applicability Domain:** flame brazing of high strength joints.



7.6.

Title	**Irremovable Modular Composite Element, Comprisis Rectangular Pipe Made Of Carbon Or Slightly Alloyed Steel**
Authors	Horia BINCHICIU, Radu IOVĂNAŞ, Victor GEANTĂ, Ionelia VOICULESCU, Aurelia BINCHICIU, Daniela IOVĂNAŞ, Radu ŞTEFĂNOIU, Emilia BINCHICIU
Institution	**SC SUDOTIM AS SRL Timişoara**
Patent no.	Patent Number RO125759-A0 / No. OSIM – A-00249/18.03.2010

Description

The Irremovable Modular Element, composite rod type, consists of a rectangular pipe made of carbon or slightly alloyed steel, with thick walls, which is reinforced on the active surface sides by depositing steel hard layers with a crystalline grains orientation along the stress zone and reinforced by filling them with metallic putty.

The Manufacturing Process Of Modular Element is a secvential multi-stage process type. The first stage consists in a symmetrical loading of the active surfaces by flux-shielded welding with strip-type electrodes and controlled cooling of the reinforcement depositions. The second stage consists in a stress-relieving and dehydrogenation of the modular elements. The third stage consists in a reinforcement of the rectangular pipe by filling it with metallic putty.

Applicability Domain: obtaining of removable active edges for processing by press tools.

7.7.

Title **Magnetic construction Materials. Magnetic House**

Authors Ioan Davidoni, Ioan-Ciprian Davidoni

Patent no. Pending

Description Combined magnetic elements are used in the manufacture of the construction materials: concrete, bricks etc. 1 kg of magnetic materials are used for a 60sqm house.

7.8.

Title **Automated Stacking System For Paving Stones On A Stacking Conveyor**

Authors **Constantin FILOTE, Mihai-Cristian TIRON, Ilie MIRĂUȚĂ**

Institution **Ştefan cel Mare University of Suceava**

Patent no. **OSIM A/00204/08.03.2011**

Description

The patent consists in an automated stacking conveyor that is formed of two band conveyers, 1 and 7, an extracting system 8, and a carrier fitted with an elevator 10, which stacks the items 16 on a staking conveyor using mainly the gravitation force as driving principle for final stacking of items, which represents the most difficult part of the job.

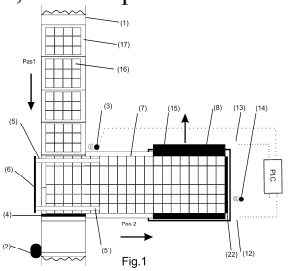


Fig.1

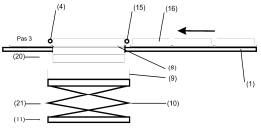


Fig.2

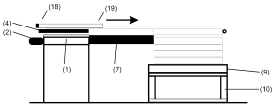


Fig.3

CLASS 8.

Aviation, car industry and transportation

8.1.

Title	**Multifunctional Tractor**
Authors	Ciubucciu Gherasim
Institution	-
Patent no.	RO OSIM – U 2010 00051
Description	A tractor which is equipped with various devices useful for interventions in case of natural disasters. It is usable in villages and small cities.

8.2.

Title	**Fault-tolerant modular electric motor**
Authors	Mircea RUBA, Lorand SZABO
Institution	**Technical University of Cluj-Napoca**
Patent no.	Patent application RO: A/00504/2009
Description	The patent contains the idea of a three phased switched reluctance electrical motor with a modular design that allows it to operate despite one or two faulted coils from the same phase. A second advantage of this design is the possibility of easy replacement of the faulted module by simply extracting its fixing rods. This way there is no need of decoupling the machine from its load, a major advantage in industrial environment.

8.3.

Title	**Method and system for one line vehicle traffic control**
Authors	LEŢIA Tiberiu, CIUPAN Cornel
Institution	**Technical University of Cluj-Napoca**
Patent no.	Patent application RO: 10017/2009
Description	The invention relates to a method and a system of traffic

	control vehicles and use a control device and a mechanical system which imposes an obstacle for those cars which do not meet the required speed in the control section.

8.4.

Title	**Hydraulic logical block**
Authors	Ioan I. POP
Institution	**Technical University of Cluj-Napoca**
Patent no.	RO 81756
Description	This patent refers to a hydraulic logical block destined to the utilization of the logical function FLIP-FLOP in the hydraulic circuits automatization that are used at different machines and tools.

8.5.

Title	**Rotational mechanism for robots**
Authors	Ioan I. POP
Institution	**Technical University of Cluj-Napoca**
Patent no.	RO99463
Description	This patent is part of the electrohydraulical drives domain, and it offers a new solution of driving the rotation modules that are part of industrial robots structure, and which allows the obtainance of a better displacement speed.

8.6.

Title	**Proportional hydro-logistc drosel**
Authors	Ioan I. POP
Institution	**Technical University of Cluj-Napoca**
Patent no.	RO89647
Description	This patent refers to a proportional hydrologistic drosel utilized to the regulation of the displacement speeds of linear hydraulic motors or of the rotation frequence of the rotative motors, in those cases in which the load does not vary relatively to time.

8.7.

Title	**Improvements in power transmission from the eolian rotor to the base of the tower, through pressure waves**
Authors	Ioan I. POP
Institution	**Technical University of Cluj-Napoca**
Patent no.	Pending
Description	This patent refers to a simplification and a reduced complexity of the contruction and safety of the eolian towers.

8.8.

Title	**Automatic, inertial gear-box**
Authors	Ioan I. POP
Institution	**Technical University of Cluj-Napoca**
Patent no.	Pending
Description	This patent refers to a solution regarding an automatic inertial gear-box, without clutch and gears, derived from Gogu Constantinescu's convertor.

8.9.

Title	**Method of Control for Industrial Robots**
Authors	CIUPAN Emilia, MORAR Liviu, CIUPAN Cornel
Institution	**Technical University of Cluj-Napoca**
Patent no.	Patent application No: a 2008451/2008
Description	The patent offers a new method for controlling industrial robots based on a neural network training algorithm. The training data is determined by the mathematical model or physical model experiments on the robot.

8.10.

Title	**Method of training robots to avoid obstacles**
Authors	CIUPAN Emilia, MORAR Liviu, CIUPAN Cornel
Institution	**Technical University of Cluj-Napoca**
Patent no.	Patent application No: a 2008450/13.06.2008
Description	The patent offers a new method for training industrial robots to avoid collision in the workspace. The obstacle avoidance path for the robot is automatically done by proper network training.

CLASS 9

Chemical and Textile Industry

9.1.

Title	**Method for fractionation of amino acids mixtures**
Authors	Dan Cascaval[1], Anca-Irina Galaction[2], Alexandra-Cristina Blaga [1], Alexandra Carlescu[1]
Institution	**[1]Technical University „Gheorghe Asachi" of Iasi; [2]University of Medicine and Pharmacy „Gr.T. Popa" of Iasi**
Patent no.	Pending
Description	The patent describes a new method for selective separation of amino acids from protein hydrolysates or fermentation broths. Therefore, by using the reactive extraction with D2EHPA, high efficiency and selectivity can be reached with low energy and materials consumption.

9.2.

Title	**Method for separation of cinnamic acid**
Authors	Dan Cascaval[1], Anca-Irina Galaction[2], Alexandra-Cristina Blaga [1], Lenuta Kloetzer[1]
Institution	**[1]Technical University „Gheorghe Asachi" of Iasi; [2]University of Medicine and Pharmacy „Gr.T. Popa" of Iasi**
Patent no.	Pending RO A00646/27.07.2010
Description	The patent presents a new method for separation of cinnamic acid from fermentation broths or chemical reactions media. The method consists on reactive extraction and increases the separation efficiency, decreases the required steps number and, implicitly, reduces the separation cost.

9.3.

Title	**Electrochemical process for obtaining 7β,11-diacetoxy-drim-8-ene**
Authors	Mironov G., Colța M., Vlad P., Ciocârlan A.
Institution	**Institute of Chemistry, Academy of Sciences of Moldova**

Patent no. **Nr. 3967 MD**

Description The invention relates to the field of chemistry, particularly to electro-chemical processes for obtaining drimanic sesquiterpenoids that can be used as intermediate compounds for obtaining biologically active products

9.4.

Title **Method for Obtaining Antimicrobial Cellulose Fabrics**

Authors Ana-Maria Grigoriu, Cristina Racu, Rodica Diaconescu, Aurelia Grigoriu

Institution **„Gheorghe Asachi"Technical University of Iasi**

Patent no. OSIM File no. A04788/8.02.2010

Description The invention deals with a method for obtaining antimicrobial resistant cellulose textiles by means of the grafting of monochlorotriazinyl - β – cyclodextrin, simultaneously with spinning, on cellulosic hemp materials. The covalent bonding provides hosting cavities that can include a large variety of chemicals for specific nanometrical superficial finishing. As guest is used allantoin ($C_4H_6N_4O_3$ - 5-ureidohydantoine or glioxyldiureide). The method has two stages: the simultaneous spinning and grafting of monochlorotriazinyl-β-cyclodextrin on the cellulose support – by means of a pad-dry-cure technique -, and the inclusion of the antimicrobial agents - by impregnation in solution. This nanofinishing is antimicrobial effective against some microbial strains (*Escherichia coli, Staphylococcus aureus, Pseudomonas aeruginosa, Candida albicans*) and washproof. The invention has as potential industrial application the obtaining of summer clothes, for sport and indoor activities clothes, as well as clothes for special medical conditions (photosensitivity and skin deseases).

9.5.

Title **Simultaneous Proceeding for Wet-Spinning and Grafting of Hemp and Flax Fibers Destined for Medical Textiles**

Authors Cristina Racu, Ana-Maria Grigoriu, Aurelia Grigoriu

Institution **„Gheorghe Asachi"Technical University of Iasi**

Patent no. OSIM File no. RO **A00811/12.10.2009**

Description

The invention deals with a method for the obtaining of flax and hemp yarns grafted with a reactive cyclodextrin. The proceeding supposes the wet spinning of flax and hemp fibers simultaneously with the grafting of monochlorotriazinyl- β- cyclodextrin on fibers. The solution have to be introduced in the tank of the wet spinning machine, at room temperature, in order to impregnate the flax and hemp rovings for 5÷45 seconds. After spinning the yarns must to be oven cured in order to finalize the grafting. The removal of the excess of the reactives is realized by repeated warm and cold washings with distilled water until reaching a pH value of 6.5-7. The materials grafting belongs to a pad-dry-cure technique. After grafting, bioactive compounds will be included in the nanocavities of the reactive product. Therefore, the application fields for flax and hemp fibers may be extended to the medical sector by obtaining ecological products with new functional properties.

9.6.

Title **Technology For Nanofibers Achievement Through Electrospinning Computerized System**

Authors Manea Liliana-Rozemarie, Cramariuc Bogdan, Cramariuc Oana, Cramariuc Radu, Lupu Iuliana Gabriela, Scârlet Roxana

Institution **Technical University „Gheorghe Asachi”**

Patent no. RO File 9021/3.06.2010

Description

From a large and international perspective the patent suggests a new design of the process equipment: modularity and automatic controllability. Modularity has been implemented so that it should allow the systematic variation of a large number of parameters influencing the electrospinning process. The existing modular designs usually allow the variation of a small number of parameters. In addition, there is to our knowledge no reported system in which the position of the collector can be adjusted to be both vertical and horizontal. Automatic controllability allows the real time control of the parameters and the simultaneous recording of the changes in the fluid jet and macroscopic nanofiber morphology. Again, there is to our knowledge no electrospinning device incorporating all these features.

9.7.

Title	**Innovating technologies for nanofibers achievement through electrospinning**
Authors	Manea Liliana-Rozemarie, Cramariuc Bogdan, Cramariuc Oana, Cramariuc Radu, Lupu Iuliana-Gabriela, Scârlet Roxana
Institution	**Technical University „Gheorghe Asachi"**
Patent no.	RO File 9020/3.06.2010
Description	The present innovation develop a technology for nano-fiber production by means of a computer controlled electrospinning system developed based on the idea of modularity and computerized control. According to the invention, nanofibers achievement through electrospinning computerized system is innovative by specific technologies software and by the features of computerized control equipment which allow us to command and control the following parameters: high voltage in two ways: at constant tension and constant current, the flow of polymer solution, the control volume of polymer solution into the syringe, in use, the speed of the nozzle, wide nozzle movement, speed of rotation of the collector, for a cylindrical collector, speed of movement of the collector, for other types of collectors, the temperature of the air, the humidity of the air, the air speed that process occurs, the distance between the nozzle and the collector, the value of electric current that flows through the nanofiber, the electric field distribution along the nanofibre, speed nozzle cleaning needle tip in the operation.

9.8.

Title	**Method for Obtaining Antimicrobial Resistant Cellulose Fabrics**
Authors	Constantin Luca, Ana-Maria Grigoriu, Aurelia Grigoriu
Institution	**„Gheorghe Asachi"Technical University of Iasi**
Patent no.	OSIM Decission no. 4/39/28.02.2011
Description	The invention deals with a method for obtaining antimicrobial resistant cellulose textiles by means of a nanometrical superficial finishing using the monochlorotriazinyl-β-cyclodextrin inclusion compounds with three cinnamic derivative guests: caffeic acid (3,4 – dihidroxy cinnamic acid), ethyl ferulate and ferulic acid

	(*trans*) (3-(4-hydroxy-3-methoxyphenyl)-2-propenoic acid). The method implies two stages: the **grafting** of monochlorotriazinyl-β-cyclodextrin on the cellulose support – by means of a pad-dry-cure technique -, and the **inclusion** of the antimicrobial agents - by impregnation in solution. This finishing is antimicrobial effective against different microbial strains (*Escherichia coli, Staphylococcus aureus, Pseudomonas aeruginosa, Candida albicans*) and washproof. At industrial scale, it has as potential application the finishing of fabrics destined to summer clothes, clothes for sport and indoor activities, as well as to clothes used in special medical conditions (persons presenting photosensitivity and skin diseases).

9.9.

Title	**Mechatronic System For Monitoring Mutual Position Specific For Working Organs From Textile Equipment**
Authors	Lucian Hanganu, Corneliu Savencu, Lucian Constantin Hanganu*, Mihăiță Peptanariu**, Carmen Maria Loghin*, Florin Pantilimonescu*
Institution	*** "Gheorghe Asachi" Technical University of Iași** **** National Institute of Research & Development for Technical Physics of Iași**
Patent no.	Pending
Description	The main elements of this system are two inductive sensors included in a sinusoidal oscillator. By changing their inductance, proximity or farther away from a ferromagnetic material, change the oscillator frequency. The two sensors are disposed diametrically opposite against the component which is under rotation moving. Position deviations thus determined are displayed digitally, and by proper calibration there are obtained their real values measured in mm.

9.10.

Title	**Mechatronic System For Monitoring Texile Equipment Based On Embedded Hardware Components**
Authors	Florin Pantilimonescu, Lucian Constantin Hanganu, Mihăiță Peptanariu, Carmen Maria Loghin
Institution	*** Technical University "Gheorghe Asachi" of Iasi** **** National Institute of Research & Development for Technical Physics**
Patent no.	Pending

Description

The mechatronic system is developed based on advanced control theories; the pursued process parameters become data streams which must be processed in real time via a control strategy resulting from the modeling and simulation process as a whole. Based on these aspects it can control the displacements, velocities, accelerations, forces, moments. Energy and information flows in the designed mechatronic system becomes more stable, more accurate and faster, with a characteristic degree of intelligence.

9.11.

Title **Improved diesel fuel comprising biocomponents**

Authors Zofia LUKASIK, Iwona SKRET, Winicjusz STANIK, Leszek ZIEMIANSKI, Marta BARANIK, Anna DUDA, Jan LUBOWICZ

Institution **Oil and Gas Institute, Krakow**

Patent no. Patent No. PL.196146

Description

The subject of invention is improved diesel fuel comprising biocomponents blended with low sulphur diesel standard fractions in combination with biocomponents derived from renewable feedstock originating from plants

Providing of satisfied quality fuel composition containing biocomponents is not possible by direct mixing with a standard commercial diesel fuel.

These mixtures can not be used directly but they need to be improved by special selected additives including detergent-dispersant, pour point depressant, cetane number improver and its stabilizer, anti-wear component, corrosion inhibitor, friction modifier, antioxidant, demulsifier, antifoaming agent, tracer for diesel fuel identification, dye, biocide, solubility agent improving solubility of all claimed substances, and organic solvent, preferably petroleum fraction with flash-point at least 62^0C

9.12.

Title **The methodology of H_2S scavengers efficiency testing in relation to producing waters**

Authors Anna TURKIEWICZ

Institution **Oil and Gas Institute, Krakow**

Patent no. Patent application No. P. 390662

Description

The method is used for underground gas storage facilities (UGS) in exploited deposits. Environment pollution by a biogenic hydrogen sulphide lowers the quality of the

stored material and causes a number of exploitation problems. The process of biological reduction of sulphides, present in the environment of deposit fluids, causes sulphurisation of the stored gas and difficulties in the exploitation of the UGS objects.

9.13.

Title	**A lubricant for plastic working of metals**
Authors	Anna ZAJEZIERSKA, Małgorzata RUTKOWSKA, Agnieszka SKIBINSKA, Joanna ZIMNY, Małgorzata MASLANKA
Institution	**Oil and Gas Institute, Krakow**
Patent no.	Patent application No. P.392576
Description	The subject of the invention is a lubricant for hot plastic working of metals, especially recommended for die forging characterized itself by good lubricity and adhesion properties which provide formation of durable coat separating on die block and ensuring forging adhesion as well as showing high ability for biodegradation.

9.14.

Title	**Multifunctional Package of Biocide and Stabilisation Additives**
Authors	Winicjusz STANIK, Zofia LUKASIK, Katarzyna SIKORA, Grażyna ZAK, Maria LENYK, Ireneusz BEDYK
Institution	**Oil and Gas Institute, Krakow**
Patent no.	Patent application No. P.392738
Description	The subject of the invention is a multifunctional package of biocide and stabilisation additives for biofuels, in particular for fatty acid methyl esters, which are to be used as a standalone fuel (B100) in diesel engines, as well as a biocomponent of hydrocarbon fuels in various quantities identified as (B5, B7, B10, B20). The compatibility of the multifunctional biocide and stabilisation additive for standalone biofuels and biocomponent for fuels with other additives that are used in modern engine oils is an additional positive feature of our invention. It helps to solve problems associated with the operation of diesel-powered vehicles.

9.15.

Title	**Potentiometric nitrite-selective sensor**
Authors	Vlascici Dana[a], Pică Elena Maria[b], Cosma–Făgădar Eugenia[c], Bizerea Otilia[a], Costişor Otilia[c], Cosma Viorica[b]
Institution	**[a]Universitatea de Vest Timişoara** **[b]Universitatea Tehnică din Cluj-Napoca** **[c]Institutul de Chimie al Academiei Române, Timişoara**
Patent no.	Patent application RO No: 122790/2010
Description	The potentiometric sensor for nitrite and reference elctrode imersed in solution with nitrite ions, are making a electrochemical cell with a electromotor force who is practically determined by concentration of nitrite ions from solution.

CLASS 10.

Information Technology and Communication

10.1.

Title **Generating Method and Generator for Time Series with Long Periods**

Authors Horia-Nicolai TEODORESCU

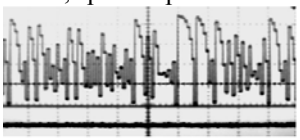
Institution Institute of Computer Science of the Romanian Academy

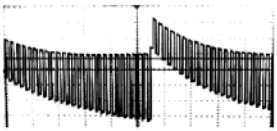
Patent no. Patent application OSIM No. A/01218/28.11.2010

Description

The invention discloses a method for generating and a generator of time series with very large periods and high complexity. The time series generation is based on the iteration of functions from a special class of functions, namely piecewise linear functions where each line segment has multiplicative coefficients represented by powers of 2 only, such that all operations can be performed easily and fast on small microcontrollers that do not have an included multiplier. The generator can simultaneously iterate two or several such functions and combine the results such that to increase the complexity of the generated time series.

Applications: Embedded systems, sonar echolocation, measuring equipment (noise generators), communication systems, spread-spectrum communication, data security





10.2.

Title **QoS sensitive framework for real-time transmission of information in heterogeneous computer networks and dynamic bandwidth allocation method**

Authors Iancu Bogdan, Peculea Adrian-Lucian, Dădârlat Vasile-Teodor

Institution **Technical University of Cluj-Napoca**

Patent no.	Patent application RO No: A/10017/2010
Description	The goal of the QoS sensitive framework is to ensure end-to-end quality of service in heterogeneous computer networks, through admission control and self-adaptive bandwidth reconfiguration. The dynamic bandwidth allocation method consists in allocating a quantity of bandwidth to achieve end-to-end connections, by statically dividing the physical line into three main sections: Guaranteed Link, local Common Link and global Common Link, thus extending the SAR (Self-Adaptive Bandwidth Reconfiguration) framework's method.

10.3.

Title	**System and method for secure communication between fixed and mobile devices**
Authors	Aştilean Adina, Folea Silviu, Avram Camelia, Hulea Mihai, Miron Radu Florin, Leția Tiberiu Ștefan, Ciupan Emilia
Institution	**Technical University of Cluj-Napoca**
Patent no.	Patent application RO No: A/10037/2010
Description	The patent refers to a system and a secure method of communication between fixed and mobile devices based on fingerprints. The secured access system consists of one or more transmitter subsystems and a receiver subsystem consisting of a distributed application server connected to the Internet. The transmitter subsystem has a fingerprint reader equipped with storage and processing unit, with the added possibility of communicating using Bluetooth technology, Wi-Fi for short range communications, or GPRS, for large distances. The secured method of communication assumes the sending-receiving of an encrypted message using a symmetric key encryption algorithm and limited key lifetime. The symmetric key generation method uses information from a fingerprint reader belonging to the communication session participants and their positions. Authentication is performed according to a protocol involving the user position, the identity codes of the entities involved in the communication process and the number of communication sessions between users, in addition to fingerprints.

10.4.

Title	**Method and hardware architecture for the automatic addressing of microarray images**
Authors	Monica BORDA; Ioan Bogdan BELEAN, Romulus TEREBES, Raul Emil MALUTAN
Institution	**Technical University of Cluj-Napoca**
Patent no.	Pending
Description	The patent provides a method enables the automatic spot location sites of various types of microarray images, eliminating the need for a workstation and a dedicated software platform. The method is used for determination of gene expression of the diseased cells.

10.5.

Title	**National Electronic Folder for Patients and its creation method**
Authors	Miclea Liviu Cristian, Sauciuc Dragoş George, Stan Ovidiu Petru, Dehelean Cătălin, Enyedi Szilárd, Ştefan Iulia Adina
Institution	**Technical University of Cluj-Napoca**
Patent no.	Patent application RO No: A10033/2010
Description	The method presents how a national IT network which is available in medical units can be created and used to transfer data between these units according to the medical data communication standard EN/ISO 13606. This method is used to create a nationally accessible database comprised of demographic and medical data of the patients. The electronic folder is based on a national reference registry and and a national archetype registry which interconnect with medical units databases.

10.6.

Title	**Optical Modes Separator (Te, Tm) Based On $In_{0.3}Ga_{0.7}As/GaAs$ Heterostructures With Quantum Wells**
Authors	N. Sîrbu[1], A. Dorogan[1], T. Vieru[1], E. Kapon[2], A. Mereuţa[1]
Institution	**[1] Technical University of Moldova, Laboratory of Micro-Optoelectronics, [2] École Polytechnique Fédérale de Lausanne, Switzerland**
Patent no.	Pending
Description	The study of luminescence, absorption and reflection

spectra of $In_{0.3}Ga_{0.7}As/GaAs$ heterostructures with quantum wells was made for determining fundamental electronic states of polariton excitons in quantum wells. The presence of electronic transitions from the excited excitonic states was determined and it was proposed a model of optical modes separator (TE, TM) based on $In_{0.3}Ga_{0.7}As/GaAs$ heterostructures.

10.7.

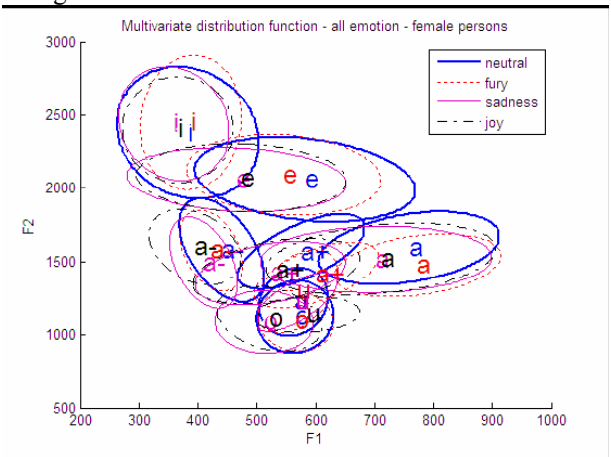
Title	**Monitoring And Remote Control System**
Authors	V. Dorogan, S. Vieru, T. Vieru, V. Secrieru, E. Munteanu, Ş. Balica
Institution	**Technical University of Moldova, Laboratory of Micro-Optoelectronics**
Patent no.	Pending
Description	The monitoring and remote control system is an autonomous unit, which is powered from the accumulator. The electronic block collects signals from various sensors of humidity, gas, fire, breaking and transmits signals via a stationary phone or GSM. Battery supply systems are carried out by the conversion of renewable energy (hydro, wind, solar).

10.8.

Title	**Optoelectronic Module For Gas Detection**
Authors	V. Dorogan[1], S. Vieru[1], T. Vieru[1], A. Dorogan[1], V. Secrieru[1], E. Munteanu[1], Ş. Balica[1], E. Kapon[2], A. Sîrbu[2]
Institution	**[1] Technical University of Moldova, Laboratory of Micro-Optoelectronics** **[2] École Polytechnique Fédérale de Lausanne, Switzerland**
Patent no.	Pending
Description	Optical gas detection module consists of vertical emitting laser diode (VCSEL), optical flux control photodiode, a thermoelectric cooler, thermo-resistor - all integrated in one chip. The gas chamber consists of a parallel mirrors system. Optical beam is multiply reflected in the mirror system after it is recorded by a photo-detector. Optical path of beam in the gas medium is changed by the rotation of mirrors that reflect the optical beam, increasing the absorbed energy by the gas.

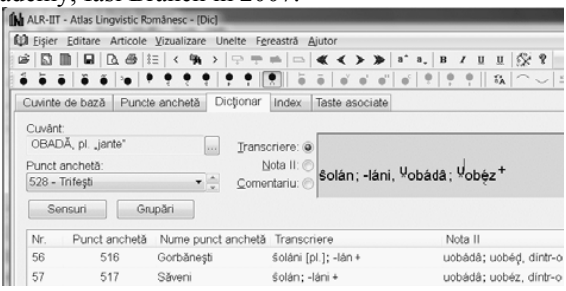
10.9.

Title	**A tool of the statistical parameters extraction from emotional sounds for Romanian language**
Authors	Marius Zbancioc, Monica Feraru
Institution	**Institute of Computer Science of the Romanian Academy**
Patent no.	Pending
Description	It represents the vowel triangle based on the average values of F1 and F2 formants and the two-dimensional histogram of the formants for a specified vowel in an emotional context. For each emotion (joy, sadness, fury, neutral tone) it allows the extraction for each phoneme of the following statistics parameters: the average, the mean and the dispersion of the fundamental frequency F0 and F1-F4 formants, the median and the Skewness. Can be the support for the features vectors extraction, which can be used in an application for the emotions recognition in order to realize an intelligent human-machine interface. **Applications:** the analysis of the characteristics phonemes of the Romanian language, emotion recognition, artificial intelligence



10.10.

Title	**Software system for dialectal text editing and Regional Romanian Linguistic Atlas publishing**
Authors	Horia-Nicolai Teodorescu, Vasile Apopei, Silviu Bejinariu, Ramona Luca, Cătălin Bulancea, Mariana Roman
Institution	**Institute of Computer Science of the Romanian Academy**
Patent no.	Pending
Description	The software system for Dialectal Text Editing and Regional Romanian Linguistic Atlas publishing provides facilities for: maintenance of the Linguistic Atlas dictionaries, management of graphic symbols used in the phonetic transcription of the Romanian language, automatic generation and editing tools for the linguistic maps, tools for synthetic maps automatic generation, search and information processing functions, automatic generation of word indexes, editing and formatting tools for dialectal texts. This system is not only a tool for atlases publishing, but also a research instrument for linguists and dialectologists. It was used to prepare the plates of the 3rd volume of the "Regional Romanian Linguistic Atlas – Moldova and Bucovina" published by the Institute of Romanian Philology "A. Philippide" of the Romanian Academy, Iasi Branch in 2007.

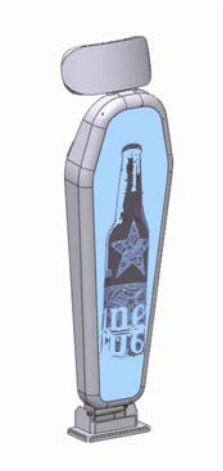


CLASS 11.

Printing and Advertising

11.1.

Title	**Advertising folding chair for catering**
Authors	Adam Gracanin, Dominik Zinic, Slavko Hlupic, Damir Matijak
Institution	**Udruga Inovatora Fakulteta Strojarstva I Brodogradnje, Zagreb, CROATIA**
Patent no.	Design application number: D20110020A
Description	The innovation is intended for use in all restaurants and private facilities in order to better utilization of the same space, and the possibility of additional advertising space. Folding chair marsh design follows all the new trends in interior space planning. Simple and safe design enables fast installation, and then get the result of the smooth movement around the bar when the chair is used and very easy to set up in position for use. With great functionality, design and attracting attention at first glance, the possibility of a new advertising space or decorate the object to which it is fitted.



11.2.

Title	**Advertising Backpack**
Authors	Ciubucciu Gherasim
Institution	-
Patent no.	RO 2010 00449 /20.05.2010
Description	A backpack containing a portable DVD player, which displays audio and video advertising clips.

11.3.

Title	**Advertising device with mobile presentation stands**
Authors	Vuşcan Gheorghe Ioan, Haiduc Nicolae
Institution	**Technical University of Cluj-Napoca**
Patent no.	RO123184/2010
Description	The invention relates to a advertising device with mobile presentation stands, easily applicable to any cylindrical or conical existing pole, driven by currents of air power even at low speeds of wind. Mobility of the device provides a more effective dynamic advertising than a static device and provides the necessary energy for eventual applied spotlights.

CLASS 12.

Safety, protection and rescue of people

12.1.

Title	**Device for desooting the exhaust gases and for abating the noise of the internal combustion engine**
Authors	Al.Craciun, T.Sajin, Gh.Duca, V.Ene
Institution	**State University of Moldova**
Patent no.	Patent №310(MD)
Description	Desooting of exhaust gases occurs through physical adsorption of soot particles on the adhesive surface of the liquid phase. Automobile transport and devices with internal combastion engines

12.2.

Title	**Cannonball Extinguisher**
Authors	Ciubucciu Gherasim
Institution	-
Patent no.	RO Pending 2009 00468 /22.06.2009
Description	The invention consists of a spherical container filled with powder or other extinguishing substance, a pressurizing valve and a sprinkler head which will trigger at a predetermined temperature

12.3.

Title	**Small robotized unit for reconnaissance**
Authors	Tomasz KRAKOWKA, Sławomir KAPELKO, Mariusz KOZAK
Institution	**Industrial Research Institute for Automation and Measurements- PIAP, Warsaw**
Patent no.	P-382953, P-383658,P-384093, P-387480, P-389296, P-357657, P-389867
Description	It is a mobile robot designed for quick reconnaissance of field and places difficult to access, i.e. vehicles' chassis, places under seats in means of transportation, narrow rooms or ventilation ducts. The Robot basic moving

assembly consists of hybrid system (caterpillars-wheels), but if necessary, a moving wheels can be dismantle. Solid construction of small dimensions and small weight with dynamic driving system provides high maneuverability and high speed of the robot (10 km/ hr).Application of the robot can be multiplied by mounting additional devices on its mobile base i.e.: manipulator with a grip, cameras, additional front caterpillars, handle and cabling for recoilless disrupter, digital camera and cabling for recording the vision and microphone signals, chemical contamination detector, X-ray device, fibre-optic cable with active automatic roller.
Technical data:
Dimensions with wheels: h 180 mm, w 543 mm, l 530 mm, Dimensions without wheels:h.145 mm, w 328 mm, l 495 mm, Weight: 12,5 kg, Speed: approx. 10 km/h (depends on load), Radio control: approx. 300 m.

12.4.

Title	**Multi-sensor system for monitoring biological parameters of fighter in the tactical field**
Authors	Liviu COŞEREANU, Mircea CERNAT, Marin DUMITRU, Nicolae NĂCIOIU, Laura ȚIGLEANU, Camelia MAZĂRE, Petre VOICU
Institution	**Military Equipment and Technologies Research Agency, Test, Evaluation and Scientific Research Weapons Systems Center**
Patent no.	Pending
Description	The presented system is composed of sensors embedded in equipment which is continuous monitoring

12.5.

Title	**Mechanical-hydraulic equipment to support the mission to enhance the motion capabilities of the future**

	soldier
Authors	Liviu COŞEREANU, Mircea CERNAT, Marin DUMITRU, Nicolae NĂCIOIU, Laura ȚIGLEANU, Camelia MAZĂRE, Petre VOICU
Institution	**Military Equipment and Technologies Research Agency, Test, Evaluation and Scientific Research Weapons Systems Center**
Patent no.	Pending
Description	The equipment enables the user to make huge physical efforts, also can be adapted for persons with physical disabilities.

12.6.	
Title	**CIBERIS Surveillance robot on limited access spaces**
Authors	Liviu COŞEREANU, Mircea CERNAT, Marin DUMITRU, Nicolae NĂCIOIU, Laura ȚIGLEANU, Camelia MAZĂRE, Petre VOICU
Institution	**Military Equipment and Technologies Research Agency, Test, Evaluation and Scientific Research Weapons Systems Center**
Patent no.	Pending
Description	Autonomous system that allows entry into difficult areas and in dangerous places, allowing surveillance, obtaining information from facilities and assistance in certain situations of danger.

12.7.	
Title	**Individual Decontamination system**
Authors	Ioan SAFTA, Gabriel EPURE, Răzvan PETRE, Petrişor Zamora IORDACHE, Nicoleta PETREA, Rodica LUNGU, Andrada PRETORIAN
Institution	**Military Equipment and Technologies Research Agency, N.B.C. Defence and Ecology Scientific Research Center**
Patent no.	Pending
Description	The panel is used for the decontamination of equipment and people were contaminated with various chemical agents.

12.8.	
Title	**Detector Tubes for industrial emissions: TI-NH3, TI-**

	CO, TI-Cl
Authors	Ioan SAFTA, Gabriel EPURE, Răzvan PETRE, Petrişor Zamora IORDACHE, Nicoleta PETREA, Rodica LUNGU, Andrada PRETORIAN
Institution	**Military Equipment and Technologies Research Agency, N.B.C. Defence and Ecology Scientific Research Center**
Patent no.	Pending
Description	Can detect industrial gas emissions.

12.9.

Title	**Mobile system for detection, identification and biological and chemical monitoring**
Authors	Ioan SAFTA, Gabriel EPURE, Răzvan PETRE, Petrişor Zamora IORDACHE, Nicoleta PETREA, Rodica LUNGU, Andrada PRETORIAN
Institution	**Military Equipment and Technologies Research Agency, N.B.C. Defence and Ecology Scientific Research Center**
Patent no.	Pending
Description	Detection and monitoring of toxic chemical compounds

12.10.

Title	**Integrated protection for air system for the strategic national interest buildings in case of attack by chemical and biological agents**
Authors	Ioan SAFTA, Gabriel EPURE, Răzvan PETRE, Petrişor Zamora IORDACHE, Nicoleta PETREA, Rodica LUNGU, Andrada PRETORIAN
Institution	**Military Equipment and Technologies Research Agency, N.B.C. Defence and Ecology Scientific Research Center**
Patent no.	Pending
Description	Purifies the air and alerts the population.

12.11.

Title	**Complex escalation system for protection and rescue for specialized anti-terrorist formations**
Authors	Ioan SAFTA, Gabriel EPURE, Răzvan PETRE, Petrişor Zamora IORDACHE, Nicoleta PETREA, Rodica LUNGU, Andrada PRETORIAN

Institution	**Military Equipment and Technologies Research Agency, N.B.C. Defence and Ecology Scientific Research Center**
Patent no.	Pending
Description	Specialized equipment is used by parties in anti-terrorist struggle for the dismantling of terrorist attack, the release of hostages and other such interventions.

12.12.

Title	**Multifunctional ballistic protection vest**
Authors	Ioan SAFTA, Gabriel EPURE, Răzvan PETRE, Petrişor Zamora IORDACHE, Nicoleta PETREA, Rodica LUNGU, Andrada PRETORIAN
Institution	**Military Equipment and Technologies Research Agency, N.B.C. Defence and Ecology Scientific Research Center**
Patent no.	Pending
Description	Provides user protection against injury from contact with objects that can produce (beating, pricking, cutting, tearing, etc.).

12.13.

Title	**Electronic countermeasures for the protection of armored cars**
Authors	Georgică SLĂMNOIU, Adrian CIUCULIN, Florin GÎTU, Horea JUNC, Sorin PERICLEANU;
Institution	**Military Equipment and Technologies Research Agency, Naval Research Center**
Patent no.	Pending
Description	Electronic countermeasures for the protection of armored cars

12.14.

Title	**Electronic countermeasures CHAFF & FLARE for helicopters**
Authors	Georgică SLĂMNOIU, Adrian CIUCULIN, Florin GÎTU, Horea JUNC, Sorin PERICLEANU;
Institution	**Military Equipment and Technologies Research Agency, Naval Research Center**
Patent no.	Pending
Description	Electronic countermeasures CHAFF & FLARE for

helicopters

12.15.

Title	**Electronic countermeasures CHAFF & FLARE for aircrafts**
Authors	Georgică SLĂMNOIU, Adrian CIUCULIN, Florin GÎTU, Horea JUNC, Sorin PERICLEANU;
Institution	**Military Equipment and Technologies Research Agency, Naval Research Center**
Patent no.	Pending
Description	Electronic countermeasures CHAFF & FLARE for aircrafts

12.16.

Title	**30 mm caliber projectile explosives HE - explosive HET tracer**
Authors	Georgică SLĂMNOIU, Adrian CIUCULIN, Florin GÎTU, Horea JUNC, Sorin PERICLEANU;
Institution	**Military Equipment and Technologies Research Agency, Naval Research Center**
Patent no.	Pending
Description	The product is intended for direct military structures to repel an attack.

CLASS 13.

Sports, Games and Leisure

13.1.

Title **Automatic music stand**

Authors **Matej Bošnjak**

Institution **Željeznička Tehnička Škola U Zagrebu, Croatia**

Patent no. Pending

Description

The Invention consists of a conventional music stand upgraded by a magnetic handle to turn the pages of a music score. The handle is controlled by a PLC-driven motor through a pre-given software. 24 V DC power supply. The PLC has been developed with Codesys, a highly advanced programming language.

Advantages:

The Invention allows automatic page turning of a music score, thus dispensing with manual page turning and the presence of another person on stage. There is also a possibility of centralizing the same commands for a whole orchestra.

Intended use:

Designed for page turning of a music score while playing an instrument. It can also be used as a robot hand for bringing material, leafing through the pages of various literature and as teaching aid in PLC programming.

13.2.

Title	**Acoustic control switch using microcontroller**
Authors	Matija dabić
Institution	**Klub Mladih Inovatora Ruđer, Tehnička Škola Ruđera Boškovića**, **Zagreb**
Patent no.	Pending
Description	Acoustic switch responds to enviromental sounds like clapping hands or louder shout. After first clap, switch will pull up releyand turn on mp3 player like signaling that is turn on. After second clap, switch will turn off. The switch is programmed in a way, first to choose time interval in which clap will be accepted and then to choose number of clapping. Switch is getting electrical power from source voltage of 12 V. Major parts of switch are microcontroller, releyswhich are turning of and on mp3 player and releywho has part in shifting from one releyy (play) to another releyy (stop) depending on the conditions of a number of clapping at a particular time interval. LCD display is programmed so that upon completion of registration, automaticlly turn off to reduce consumption.

13.3.

Title	**Fender Holder "CROFENDER"**
Authors	Marko Kravar
Institution	**TERMIST d.o.o. Zagreb, Croatia**
Patent no.	Patent application number: HR P20090575A
Description	Universal boat fender clip. Simple mounting of the fender, time-saving Makes yachting easier - long life, polyamide with UV protection - easy mounting on the ship's railing with height regulator - intended for Ø 22-25 railing, Ø 7 cable - finger grooves for easy removal and movement

13.4.

Title	**Multi-purpose ship's clothespin "PEG"**
Authors	Marko Kravar
Institution	**TERMIST d.o.o. Zagreb, Croatia**
Patent no.	Patent application number: HR P20100264A
Description	Special marine type, designed for good grip on fence railing, time-saving - long life, made of UV sunlight resistant material - Inox spring - non-crumpling characteristic - fastens on to Ř 22-25 tubes and ropes

13.5.

Title	**WET WIPES FOR CELL PHONES**
Authors	**Marina Crnac**
Institution	**M.presencia d.o.o. Medulin, Croatia**
Patent no.	Patent application number: HR P20080346A
Description	The invention concerns wet wipes having optimum composition and moisture percentage for application in cleaning the cellular phone. The composition is safe for both the unit and the user's skin.

13.6.

Title	**Hair Removal Device RS 1**
Authors	Slobodan Rajic
Institution	**Croatia**
Patent no.	Patent application number: HR P20100456A

Description

RS 1 is a device for manual shaving with one or more blades, which perform a vibrating motion perpendicular to the direction of the cut and parallel to the cutting edge of the blade. Thanks to this, cutting of hair actually becomes sawing of hair. As sawing requires less energy than cutting, the act of shaving becomes easier and more enjoyable.

CLASS 14.

Other

14.1.

Title	**Method of the batch optimizing**
Authors	CIUPAN Emilia
Institution	**Technical University of Cluj-Napoca**
Patent no.	Patent application RO No: a10018/2009
Description	The problem that the invention solves is to achieve a method of optimizing the batch in a statistical system for inventory management. The method is based on historical of consumption, using a mathematical model and a neural network and allows determination of the order and size order, to avoid rupture of stock.

14.2.

Title	**Carbon clusters in devices and materials**
Authors	Petru Lozovanu, Mihail Caraman, Eleonora Bolboceanu
Institution	**State University of Moldova**
Patent no.	MD 1544
Description	The technology of obtaining of sensors for determining the concentration of gaseous compounds. New materials that contains carbon clusters.

14.3.

Title	**Technologies Of Hairdresser Work Harmonization**
Authors	V. Goch, Yu. Skomorovskyy, L. Skomorovska, V. Samokhvalov, M. Goncharenko, A. Karpin, A. Sergienko
Institution	**Centre "Ayumel" LTD, Ukraine**
Patent no.	Patents of Ukraine
Description	Produced new method on the basis of nature space-time understanding and pictographic technologies on the basis of new runes for more effective using of hairdresser' instruments and mirrors for harmonization of functional state of hairdressers and users of hairdressers services.

14.4.

Title	**Energysaving Resonance Transformer of Energy**
Authors	Yu. Martsinyshyn
Institution	**Ukraine**
Patent no.	Patents of Ukraine
Description	In the conditions of shorttage and increase of cost of energy, growth of production volumes, infrastructures of cities more actual to become problem of energy-savings and in particular economies of electric power. To support dynamic efficiency of electro-receivers in a range nominal, providing diminishing of consumption of active-power from 5% to 30% depending on office hours.

14.5.

Title	**Harmonizer of One' Individual Time**
Authors	V. Goch, V. Kulinichenko, V. Novikov
Institution	**Centre "Ayumel" LTD, Ukraine**
Patent no.	Patents of Ukraine
Description	On the basis of process of oscillation, electro-magnetic body activity and "individual" time normalization effect understanding produced device for harmonization of one' "individual" time.

14.6.

Title	**Technologie of "Indivividual" Time Correction**
Authors	A. Ershova, A. Olhovskyy, A. Nikitina, V. Fedorova, T. Pinchuk
Institution	**Centre "Ayumel" LTD, Sevastopol Politechnical Liceum**
Patent no.	Pending
Description	Produced technologie of "indivividual" time correction on the basis of videoecology effect and new testing system for this aim. Technologie very useful for study process in schools, universities.

14.7.

Title	**Crystal Energy Concentrator Device**
Authors	V. Goch, V. Kulinichenko, A. Perminov, N. Perminova, Yu. Skomorovskyy, V. Selishchev
Institution	**Centre "Ayumel" LTD**
Patent no.	Pending
Description	Generation of high positive energetic zones by means of device configuration effect with special crystal form produce bioadequate support for living systems harmonization .

Innovative Researches
Students – MsD – PhD - PostDoc

R.1.

Title **Research on electrodeposited Co-TiO_2 nanocomposite thin films**

Authors M. Poiana[1], M. Dobromir[1], A.V. Sandu[2] and V. Georgescu[1]

Institution [1] Faculty of Physics "Al. I. Cuza" University of Iasi
[2] Gheorghe Asachi Technical University of Iasi

Description

Composites containing inserted TiO_2 particles in a matrix of magnetic Co are interesting nanostructured materials, due to the photo catalytic properties of TiO_2, combined with magnetic properties of metallic film. The envisaged applications are in the domain of magnetic sensors with photo electro catalytic properties. Electrolysis is a convenient method used for preparing such films due to its low cost and versatility.

Co-TiO_2 nanocomposite films are electrodeposited onto copper substrate using a bath containing $CoSO_4 \cdot 7H_2O$, H_3BO_3, NaCl, $Na_2SO_4 \cdot 10H_2O$ and dispersed TiO_2 nanoparticles. The TiO_2 nanoparticles were added to the plating bath with continuous magnetic stirring to ensure uniform dispersion of the nanoparticles in the film. The films composition was controlled by the addition of different concentrations of TiO_2 nanoparticles in the solution, and by applied voltage. The Co-TiO_2 films were characterized by X-ray photoelectron spectroscopy (XPS) and scanning electron microscopy (SEM) analysis.

In addition to measuring hysteresis loops by an induction type device with magnetic field applied in the film plane (50 Hz, in a maximum field of 60 kA/m), a torque magnetometer (H_{max}=95kA/m) was used to study anisotropy of the samples, at room temperature. Magnetoresistance (*MR*) measurements at room temperature were carried out by usual four-terminal method in dc magnetic field of ± 300 kA/m, applied perpendicular to the current, in plane of the film. We have found that the morphology, magnetotransport and magnetic properties of the Co-TiO_2 nanocomposite films are influenced by deposition parameters, such as applied voltage, TiO_2 nanoparticles concentration and steering of the electrolyte.

R.2.

Title **Influence of Zn layers on magnetic and magneto-transport processes in granular [Ni-Fe/Zn/Co-Ni-N/Ni-Mn] spin valves**

Authors P. Pascariu[1], A. V. Sandu[2] and V. Georgescu[1]

Institution *[1]Faculty of Physics "Al. I. Cuza" University, Iaşi 700506, Romania, [2]Faculty of Materials Science and Engineering, "Gheorghe Asachi" Technical University, Blvd. Mangeron, No. 71, Iaşi, 700050, Romania*

Description

In this work, we report experimental results concerning the giant magnetoresistance effect and the magnetic properties of [Ni-Fe/Zn/Co-Ni-N/Ni-Mn] spin-valve sandwich electrodeposited on Cu substrate. The attraction of such granular spin valves is that they can be very easily manufactured, with a view to their application as magnetoresistive material in magnetic field sensors. The SEM images show that all the samples have the morphology of granular type. The granular structure is induced both due to the immiscibility of the diamagnetic Zn layer with the ferromagnetic Co-Ni-N, and to the addition of N impurity in the Co-Ni-N layer. By varying the thickness of Zn layer, the coercive fields corresponding to free and pinned layers varied in the range 68 Oe÷ 86 Oe for Ni-Fe layer and 319 Oe ÷ 337 Oe for the Co-Ni-N layer. The thickness of the Zn diamagnetic interlayer (varying between 3 nm and 13 nm) plays a significant role on the magnitude of the giant magnetoresistance (GMR) effect, and the magnetic behavior is dependent on this parameter. The magnetoresistance measured in current in plane (CIP) and current perpendicular to plane (CPP) configurations, with dc magnetic field applied in the film plane, varied with Zn interlayer thickness, exhibiting a GMR contribution of about 13% (CIP) and 10% (CPP) in the case of [Ni-Fe(140nm)/Zn(3 nm)/Co-Ni-N(150nm)/Ni-Mn(160nm)] granular spin-valve stack. It was shown for the first time that the combination of [soft magnetic /diamagnetic/hard magnetic/antiferomagnetic] layers with Zn as diamagnetic and Co-Ni-N as hard ferromagnetic layers showed the GMR effect.

R.3.

Title New biodegradable composites of ambiental use

Authors Camelia Mihăilescu, Simona Bistriceanu, Victor Bulacovschi, Mihai Daranga, Maria Ivanoiu

Institution *"Ghe. Asachi" Technical University of Iasi, Faculty of Chemical Engineering and Environmental Protection*

Description

The polymeric composites reinforced with textile fibers are a relatively new class of materials, which development registers a spectacular dynamic. The reinforcing fibers are essential in providing the strength resistance, while the matrix

determines the limit values of processing and usage temperature of the composite, being at the same time the component that confers material's tenacity. The textile composites are used in cars construction, packaging industry or as building materials. Nowadays, these materials are used for furniture and for interior design accessories and ambient art. In order to obtain composites for ambient art with corresponding biodegradability, there were used natural fibers and fabrics, linear poly(acryl amide) and an polyhydroxy derivative of acetone.By modifying the ratio of the three components (reinforcing material/ matrix/ coupling agent), there were obtained multilayer composites with controlled structural, mechanical and biodegradable characteristics.

R.4.

Title **Dyeing Wool Fibers with Premetallised Acid Dyes**

Authors Chirilă Laura, Butnaru Romen

Institution "Gheorghe Asachi" Technical University of Iasi, Faculty of Textile, Leather and Industrial Management

Description

Dyeing wool fibers was achieved with new synthesized premetallised dyes wich are derived from new acid dyes. The synthesis procedure of the new premetallised is relatively simple and, in addition, not involve many operations.

As ligands the acid dyes are part of the class of complexed acid dyes, orto-hidroxi azo compounds type, with sulphonic solubilising groups. The complexing reagents were used in the form of transition metals salts, such as : $FeCl_3$, $CuCl_2$, $NiCl_2$ and respectively $ZnCl_2$. the resulted premetalised dyes were characterized using the following investigation methods: elemental chemical analysis, IR-spectrometry, SEM, thermal analysis.

The synthesized premetallised dyes were tested for the wool fibers following an experimental protocol, exhibiting a good affinity. Also the tinctorial strenghts to light and wet treatments, intensity of colour were tested in order to carry out the dyeing performances. In all cases the tinctorial strenghts values are improved comparing with the uncomplexed acid dyes. The colour of each premetalised dyed sample is changing according with the used salt. In order to investigate the mechanical behavior of the dyed samples obtained at two pH values, the tensile strenghts were evaluated. TEM and XPS were used in order to evaluate the metal distribution over/into the fiber. The dyeing influention over the surface integrity of the wool fiber was investigated using SEM.

R.5.

Title	***Automatic turf irrigation system Rain Xpert***
Authors	Drd. Ing.Emanuela Souca (Pop)
Institution	**Technical University of Cluj Napoca**
Description	The proposed system is an automatic irrigation system for household use, particularly for irrigation by a well-defined path and after a predetermined schedule. The irrigation is done to purify the air and to ensure a uniform increase for grass and plants. The system is used on small and medium areas, being usedby both professionals and semiprofessionals users, and occasional customers. The system provides optimal irrigation without requiring the presence of the user during operation due to its automation.

R.6.

Title	***Adjustable-heel shoes***
Authors	Drd. Ing. Silvia Ferent-Pipas , Ing. Bogdan Ciprian Padurean
Institution	**Technical University of Cluj Napoca**
Description	The invention refers to an adjustable heel shoe that can be used by women who want high heels. The adjustable heel allows a wider range of usage for the shoes depending on the situation.

R.7.

Title	***In-traffic warning system for special vehicles***
Authors	Drd. Ing. Mihai Safriuc
Institution	**Technical University of Cluj Napoca**
Description	It represents an audio and visual warning system mainly for emergency vehicles and for those that are hard to spot in traffic.

R.8.

Title	***Robotic system for water-jet milling***
Authors	Drd. Ing. Rares-Adrian Petruş ; Drd. Ing. Adriana-Andreea Petruş
Institution	**Technical University of Cluj Napoca**
Description	This paper presents a parallel robot equipped with a water jet machining head. The system is designed for abrasive water jet milling by erosion for complex surfaces specific to mold machining.

R.9.

Title	***P T wall decorations***
Authors	Drd. Ing. Pura Ambrozie Marian
Institution	**Technical University of Cluj Napoca**

Description	P T is the abbreviation of PLEXIGLASS TILES – this project presents a new way of decorating interior and exterior walls using plexiglass tiled shapes.

R.10.

Title	***Water engine***
Authors	Drd. Ing. Ovidiu Chiribau
Institution	**Technical University of Cluj Napoca**
Description	The project proposes a vehicle that is powered by water. This method is an efficient way to convert hidrogten water and oxygen, hydrogen will be burned in the engine, replacing expensive and polluting fuels. This "Minisystem" works very well with the existing battery and electrical system and connects to the carburetor through simple accessories. The simplicity comes from the fact that the system is not "on demand", where tanks or bizarre equipment are not required.

R.11.

Title	***CNC working panel redesign***
Authors	Drd. Ing. Alexandra Toma
Institution	**Technical University of Cluj Napoca**
Description	In this paper the main task is redesigning a CNC working panel in order to show the man-machine interface function. Man-machine interface is the place where operator and machine interact/ communicate. It`s aesthetics is importantly involved in technical object caracteristic improvement and production environment.

R.12.

Title	**Spectrophotometric comparison of riboflavin and thiamine concentration from three fungi gemotherapic extracts, birch and willow sap**
Authors	Drd. Ing. Mioara Cucu, Drd. Ing. Ana Cucu, Prof. Dr. Ing. Iosif Ianculov
Institution	**Banat's University of Agricultural Sciences and Veterinary Medicine Timisoara**
Description	Our research aimed to determine the concentration of riboflavin and thiamine from three gemotherapic remedies obtained out of three edible and medicinal fungi like: *Agaricus bisporus, Pleurotus ostreatus* and *Lentinus edodes* and from *Salixs alba* and *Betula pendula* sap. The gemmoderivates, known especially for their use in a wide range of diseases, are hydro-glycero-

alcoholic solutions in the first decimal hahnemanian dilution (DH1). We used a spectrophotometric method to determine the concentration of these two vitamins. Riboflavin has shown a UV spectrum with the absorbance at a wavelength of 445 nm and thiamine has shown a UV spectrum with an absorbance between 246 and 300 nm.

R.13.

Title **Sustainable development indicators to paper recycling for reducing its impact on the environment**

Authors Fortună Maria Emiliana, Isabela Maria Simion, Maria Gavrilescu

Institution "**Gheorghe Asachi" Technical University of Iasi, Faculty of Chemical Engineering and Environmental Protection**

Description

Studies regarding life cycle of paper products frequently compare environmental impact for various product management solutions after usage. Thus it is shown that recycling paper has a smaller impact upon environment compared with incineration and storage.

Replacing virgin tree fibers with recovered fibers reduces demand for wood, which eases pressure to harvest forests and convert natural forests into tree plantations. Making paper from used paper requires less energy and is generally a cleaner manufacturing process than making paper from trees. And because it diverts usable paper from the waste stream, recycling cuts both solid waste and greenhouse gas emissions created when paper decomposes in landfills.

Usage of recycled paper is a good alternative in our times for gradual replacement of "traditional" paper and is also a good decision due to benefits regarding environment preserving worldwide, generating important resource savings.

Paper recycling and reuse is associated environmental and social costs, as a preferred alternative in waste minimization hierarchy in the manufacturing of non-trees eco-friendly paper.

R.14.

Title **The Obtaining Technology of Fe-Mn-Si-Cr-Ni SMAs by Powder Metallurgy**

Authors Bogdan Pricop

Institution **"Gheorghe Asachi" Technical University Iași, Faculty of Materials Science and Engineering**

Description

From commercial powders and mechanically alloyed powders three types of samples were prepared, one type that contains only commercial powder designated as 0%_MA, one with 50% commercial powder and 50% mechanically alloyed powers, designated as 50%_MA and the last one with only mechanically

alloyed powers designated as 100%_MA. The resulting samples were then pressed and sintered at 1390 K under cracked ammonia followed by hot rolling at different steps of temperature in order to obtain a good matrix with partial dislocations and stacking faults. After a series of heat treatments a ring shaped sample was obtained in order to be subjected to pipe coupling.

R.15.

Title	**Neural network model for the output prediction of traceability laser marking processes, on aeronautic materials**
Authors	Ştefan Rusu, D.G. Găluşcă, O. Brudaru
Institution	**"Gheorghe Asachi" Technical University Iaşi, Faculty of Materials Science and Engineering**
Description	The application aims to obtain a formal automation of the laser marking process, such that, based on existing process parameters (inputs) afferent to the marking equipment and to the material to be marked, a qualitative set of parameters can be generated (outputs) which correspond to the obtained mark, based on the aforementioned process characteristics. The scope is to predict the marking results for any type of material and for any available type of laser beam.

R.16.

Title	**Obtaning and characterisation of new phosphated layers on iron support with anti-corrosion properties.**
Authors	Andrei Victor SANDU
Institution	**"Gheorghe Asachi" Technical University Iaşi, Faculty of Materials Science and Engineering**
Description	Are presented the mechanism of obtaining crystalline layers by phosphatation of iron objects. These layers must offer climatic protection. They were chemical and physical-structural analyzed, by OM and SEM-EDX, in order to verify the obtaining processes.

R.17.

Title	**Researches about the Modernization of the Manufacturing Technology of the Mineral Insulation Cables in Metallic Tubes Made for Thermocouples by Processing in Ultrasound Field**
Authors	GAVRILA Bogdan – Lucian, SUSAN Mihai
Institution	**"Gheorghe Asachi" Technical University Iaşi, Faculty of Materials Science and Engineering**
Description	The tubes drawing may be over inside guard (over

supported plug, over floating plug or over mandrel) or without inside guard.

Depending on the ratio g / D (g-thickness of the wall, D-diameter of the processed tube), the tubes may have thin walls ($g / D \leq 0,21$) or thick walls ($g / D > 0,21$). At the present moment, for the case of without inside guard drawing processes, of the thin walls tubes, made from cold hard malleable metallic materials and work hardenable, too, SONODRAW system will apply.

The case of without inside guard drawing processes of the tubes, in SONODRAW system, means a processing with ultrasonic vibrations which are sent to the die, along the drawing direction; so, during the plastic deformation, it will obtain the "ultrasounds surface effect" or the "reduction of the metal-tool contact friction". The wanted effect of the ultrasonic energy will be obtained when the ultrasounds will have high values of energy-ultrasounds longitudinal waves, as standing waves, with the die placed in a top position of the wave oscillation. The ultrasonic or ultrasounds waves are a variety of the elastic waves which have the frequency values between 16000 Hz and 10^{10} Hz.

R.18.

Title **Modifying starch based hydrogel hydrophilicity via "click" chemistry"**

Authors A. Uliniuc[1,2], M. Popa[1], T. Hamaide[2]

Institution **[1]"Gheorghe Asachi" Technical University Iași, Faculty of Chemical Engineering and Environmental Protection, [2]Université de Lyon, Ingénierie des matériaux polymères, CNRS UMR 5223, Villeurbanne, France**

Description Biodegradable and biocompatible hydrogels are widely used for biomedical applications, as biomaterials for drug delivery applications. In the present study, in order to improve the macroscopic properties of our starch based hydrogels, we grafted PCL chains using "click" chemistry. The intermediate and final samples were characterized by FTIR, HR-MASS, TGA and swelling degree measurements.

R.19.

Title **Correlation between morphology, magnetic and magnetotransport properties of electrodeposited $[Fe/Pt]_n$ multilayers**

Authors

D. Pinzaru (Tanase)[a], S. I. Tanase[a,b], A. V. Sandu[c], V. Georgescu[a]

Institution

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[c]*Faculty of Materials Science and Engineering, "Gheorghe Asachi" Technical University, Iasi,*

Description

We report in this study on the structural, magnetic and magnetoresistance properties of $[Fe/Pt]_n$ granular multilayers. These films may be interesting for hard-magnetic applications with low cost, including microelectromechanical systems. With this purpose, granular $[Fe/Pt]_n$ multilayers with different bi-layer thicknesses (in the range 3.5-15.0 nm) have been electrodeposited potentiostatically on polycrystalline copper substrate by a single bath technique. The magnetic properties of [Fe (t_{Fe} nm)/Pt (t_{Pt} nm)]$_n$ multilayers were influenced by both the thickness of the Fe (t_{Fe}) or Pt (t_{Pt}) layers and the number (n) of bi-layers. The coercivity varied between 8 and17 $kA \cdot m^{-1}$ and the remanence ratio was $M_r/M_s = 0.23 \div 0.81$. Moreover, the uniaxial out of plane magnetic anisotropy and the shape of the hysteresis loops were dependent on the multilayer features. The $[Fe/Pt]_n$ electrodeposited multilayers display magnetoresistance effect (with a maximum value of 23%) due to spin-dependent scattering of the conduction carriers within the magnetic layers or at the boundaries of the magnetic layers and to the exchange interaction between neighboring layers. It was found that the giant magnetoresistance of these multilayers increased almost linearly with increase in the number of bi-layers. This result confirms that the number of bi-layers play a significant role in magnetoresistance and magnetic behavior of $[Fe/Pt]_n$ multilayers.

R.20.

Title

Research on Co-Ni-N thin films prepared by magneto-electrolysis, for tunnelling magnetoresistance applications

Authors

S. I. Tanase[a,b], D. Pinzaru (Tanase)[a], A. V. Sandu[c], V. Georgescu[a]

Institution

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[c]*Faculty of Materials Science and Engineering, "Gheorghe Asachi" Technical University, Iasi, Romania*

Description

The surface morphology, magnetic and magneto-transport properties of Co-Ni-N alloys thin films electrodeposited under external magnetic field (by magneto-electrolysis) were investigated in this work. The films were electroplated on Al substrates using an original bath working with the same electrodeposition parameters for all experiments, but

superimposing an external magnetic field (applied parallel or perpendicular to the cathode surface). The films were compared with similar samples obtained in the absence of external applied magnetic field. The modifications induced by magnetic field in the morphology of the films were explained by the specific local convection of ions at the cathode-electrolyte interface, which promotes changes both in the electrical charge of the double layer and in the thickness of the diffusion layer. It was observed that an induced anisotropy appeared in the Co-Ni-N films due to the preferential orientation of the easy axis of magnetization as a function of the magnetic field direction. These observed phenomena could be explained by magneto-hydrodynamic (MHD) convection of charged ions induced by Lorentz force at the electrode/electrolyte interface. Co–Ni–N films display tunneling magnetoresistance effect which could be explained mainly by the elastic spin dependent scattering of conduction electrons at the interface between magnetic grains (constituted of Co–Ni solid solution) and nonmagnetic regions (aluminium oxidized substrate)

R.21.

Title

Database on biocides for materials protection against biodeterioration

Authors

Claudia Roman, Aurelia Grigoriu, Luminita Scripcariu, Rodica Diaconescu

Institution

Faculty of Textiles and Leather Engineering/ "Gh. Asachi" Technical University

Description

For the protection of various materials used by people, should know well enough the effects of biocides that them may have on our health and environment, so we can minimize undesirable effects, by their choice in full compliance with the requirements. Biocidal products are active substances or groups of substances that prevent, neutralize and control exercise effect on any harmful organism by chemical or biological means.

The aim of the thesis is to provide those interested an analysis tool of most commonly used biocides for the protection of various materials in a wide range of industries.

We have a large amount of information but which can not be properly understood if we do not have a database type application, enabling rapid information processing and sorting, extracting them by means of various search criteria (toxicity, antimicrobial activity, application field such as: textile and leather industries, plastics, cosmetics, pharmaceutical, food, environment etc). We designed and developed a database in which we introduced useful information for the most common biocides this can be supplemented and updated later with other

new substances.

The database has a public character, being accessible online for researchers, teachers, students, doctoral students, producers, and generally for anyone wishing to obtain specialized information, complete information on these substances.

Operation of the information provided in this database allows us to draw conclusions about the mode of action of antibacterial biocides on different materials, on the toxicity and ecotoxicity so we can manage the potential risks of biocides.

R.22.

Title **Environmentally friendly pulping and bleaching of agricultural residues**

Authors Tofanica B.M., Puitel A.C., Gavrilescu D.

Institution **"Gheorghe Asachi" Technical University of Iasi**
Faculty of Chemical Engineering and Environmental Protection, Natural and Synthetic Polymers Department

Description

The aim of this study is to investigate the possibilities of producing chemical pulp with low residual lignin content from rapeseed stalks by means of conventional sulphur-free pulping followed by oxygen delignification. Chemical pulping was carried out by soda-anthraquinone method under varying conditions. The influence of sodium hydroxide as active alkali (16, 18, 20 and 22% on oven dried stalks) and maximum temperature (150°C, 160°C, 170°C) on the cellulose yield, lignin content and intrinsic viscosity was studied. Time to achieve maximum temperature (60 minutes), reaction time at maximum temperature (60 minutes), solid-to-liquid ratio (1:5) and addition of 0.5% anthraquinone (o.d.) to the alkaline liquor were kept constant in all experiments. Although using severe cooking conditions caused reduction of yield and Kappa number, desired delignification was achieved with addition of 18% of NaOH on oven dried raw material at 170°C cooking temperature. The results indicated that active alkali was the most important parameter, temperature having a minor effect on pulp yield and residual lignin content. Rapeseed pulp showed cellulosic fibers yields of 37-48% with Kappa number in range 28-111. Pulps with lower Kappa numbers (28, 35 and 57) were further subjected to a bleaching stage, showing that rapeseed pulp was easily delignified by oxygen delignification to a low Kappa number (14, 20 and 35) without any significant loss in viscosity. It was also noted that cellulosic fibers possess similar levels of delignification and yields as compared to those made from our earlier study on conventional sulphate pulping of rapeseed stalk.

R.23.

Title **Post-doctoral research**

Authors Dorina Mantu, Ionel I. Mangalagiu

Institution **„Al. I. Cuza" University of Iasi, Faculty of Chemistry**

Description

Innovation lies in using ultrasounds as a non-conventional method (environmental friendly) for the synthesis of new derivatives of 1,2-diazines type 3(2H)-pyridazones, by N-alkylation reactions. Since N-alkylation reactions under the action of ultrasound on a nitrogen atom in a heterocycle have been less studied, and in the class of 3(2H)-pyridazinones have not been studied, the results are both new and current. Thus, a comparative study conventional conditions *versus* ultrasound irradiation, has made, in order to obtain the desired products through a more efficient method. In the first stage, starting heterocycles were synthesized (reactants), and then using reactive halides, were obtained the appropriate 3(2H)-pyridazinones N-substituted.

Using ultrasonic energy has proven to be an effective method of synthesis for all new compounds obtained. Thus, using ultrasounds as a promoter of the N-alkylation reactions has achieved a considerable decrease in reaction times (compared to classical conditions) and an increase in product yield by 25%.

Since the reaction time was the same for all new compounds synthesized, we appreciate that this method can be considered to be general (at least for heterocyclic compounds with 1,2-diazines structure type 3(2H)-6-phenyl-piridazones N^2-substituted).

R.24.

Title **Research on electrodeposited Zn-Co alloys thin films for magnetic sensors applications**

Authors L. Vlad[1], A.V. Sandu[2], M. Dobromir[1] and V. Georgescu[1]

Institution **[1)] Faculty of Physics "Al. I. Cuza" University, Iasi 700506, Romania, [2)] Gheorghe Asachi Technical University of Iasi, 71 D. Mangeron Blv., 70005, Iasi, România**

Description

The purpose of our research was to obtain by a cheap method Zn-Co thin films and to study their morphology and magnetic properties, in order to find out technological applications. We report here on the electrodeposition of Zn-Co alloy of thin films onto a copper substrate, by using an original bath based on: $ZnSO_4$ x $7H_2O$, $CoSO_4$ x $7H_2O$ and some additional substances (H_3BO_3, NaCl, Na_2SO_4). The alloy composition, structure, morphology and the magnetic properties of the films were strongly dependent on the electrodeposition parameters, especially on the cathode potential.

Detailed SEM and XPS analyses indicated the presence of zinc oxide (ZnO) in the samples (both in as-prepared films and after

thermal treatment), favoring appearance of a large magnetoresistance effect. The magnetic behavior of the Zn-Co thin films is determined by their morphology produced during the electrodeposition, and modified as a consequence of the subsequent thermal treatment. The coercivities of the samples increase after thermal treatment at 350^{o}C. We have found by torsion magnetometer measurements that magnetic anisotropy easy axis is out of plane for as-deposited films and there is an antiferromagnetic type of interaction between grains. Magnetoresistance (MR) measurements were carried out in dc magnetic field by means of current in plane device configuration. We obtained the magnetoresistance values comprised between 5% and 35% for the samples after thermal treatment. The large magnetoresistance effect obtained for the Zn-Co thin films after thermal treatment makes them useful for technological applications in the domain of magnetoresistive sensors with good corrosion resistance.

R.25.

Title **Microwave assisted synthesis of blue luminophors**

Authors Gheorghiță Zbancioc, Costel Moldoveanu, Vasilichia Bejan and Ionel Mangalagiu

Institution **Al.I. Cuza University, Faculty of Chemistry**

Description

Recent studies show that pyrrolopyridazine (PP) derivatives represent such a class, being a 'pure' blue-emitting moiety. Microwave irradiation has become an increasingly valuable tool in organic chemistry, since it offers a versatile and facile pathway in a large variety of syntheses. Solid phase reactions have the great advantage of using no organic solvents ('solvent-free'), such reactions being more environmentally friendly and generate less side products. The application of microwave irradiation under solvent-free conditions enables organic reactions to occur expeditiously at ambient pressure, providing unique chemical processes with special attributes such as higher yields, shorter reaction time, milder conditions and the associated ease of manipulation.

The aim of this work was to synthesise new fluorescent PPs, to study the relationship between optical properties and structure (the effect of substituents and conjugation), and to develop a new environmentally friendly method for preparation of these derivatives using MW technologies (in liquid and solid phase).

Application

Synthesis of highly fluorescent derivatives with extended π-conjugation stirs strong interestbecause of their applications as sensors and biosensors, electroluminescent materials, lasers and other optoelectronic devices.

R.26.

Title **Post-doctoral research**

Authors Vasilichia Bejan, Ionel I. Mangalagiu

Institution **"Al.I. Cuza" University**

Description

Innovation lies in using ultrasound as environmentally friendly method for the synthesis of new azaheterocyclis analogous to natural steroids, by [3+2] cycloaddition reactions *via* cycloimmonium ylides, being the first study in the class of this type of ylides.

Biological activity of steroids is closely linked to the existence of four condensed nuclei and anionic groups on their skeleton. Starting from this hypothesis, the main objective was the obtaining of new azasteroids with phthalazinic, pyridazinic respectively benzo[f]quinolinic moiety, whose synthesis was made using conventional and nonconventional (ultrasonication) methods, using cycloimmonium ylides as reactive species in organic chemistry. The reaction pathway involves quaternization of different heterocycles, fallowed by cycloaddition reactions of ylides (generated in situ from the corresponding cycloimmonium salts) to variously dienophiles. In the first step were performed quaternization reactions of starting heterocycles with different halogenated derivatives with increased reactivity: iodoacetamide, methyl and ethyl bromoacetate or allyl bromide, obtaining the corresponding quaternary salts, which in alkaline medium (triethylamine) generated *in situ* the cycloimmonium ylides.

The [3+2] cycloaddition reactions of phthalazinium ylides at symmetrical activated cyclic alkene (N-phenyl-and N-ethyl- maleimide, 1,4-naphthoquinone) were studied. For pyridazinium ylides 1,4-naphthoquinone was used as dipolarophile, and for benzo[f]quinolinium ylides was used symmetrical and non-symmetrical activated alkynes (dimethyl acetylendicarboxylate and ethyl propiolate). All the reactions were carried out under classical conditions and ultrasounds irradition. Use of ultrasound in the synthesis of new azaheterocyclic derivatives proved to be a direct and effective method, also being an environmentally friendly method, by reducing the solvent and energy consumption.

R.27.

Title	**New colloidal synthesis route of high quality CdSe fluorescent quantum dots with tunable emission in the visible spectrum**
Authors	Cornel S.Stan, Laura Chirilă, Ion Roşca
Institution	**"Gheorghe Asachi" Technical University of Iasi, Faculty of Chemical Engineering and Environmental Protection, Faculty of Textile, Leather and Industrial Management**
Description	A new colloidal synthesis route was investigated in order to obtain fluorescent cadmium selenide quantum dots with more than 40% quantum yields and size tunable emission in the visible spectrum. Long chain aliphatic monocarboxylic acids are used in the first stage for the preparation of the cadmium precursor and then as capping ligands of the synthesized quantum dots. The method eliminates the use of a heat transfer fluid and could be easily scaled up for large quantities production, due its main advantages: reduction both in number and quantity of the required precursors, low cost and moderate toxicity raw materials, important energy savings by lower temperature requirements on a synthesis cycle and higher efficiency of the entire process, simplified separation and purification procedures of the synthesized CdSe QD's. The size of the synthesized CdSe NC's is situated in 3-10 nm range and could be easily controlled by changing some of the synthesis parameters. The absorption spectrum is situated in near UV (370 – 400 nm range) and the fluorescence emission with low FWHM (full width of half maximum) is situated in the entire visible spectrum, depending on the size of the nanocrystals. The new synthesis method was extensively tested at laboratory scale with very good results.

R.28.

Title	**Scientific investigation by physico-chemical methods of archaeologic artefacts from pre- and proto-hystory in Carpatho-Dniester area**
Authors	Dr. Viorica VASILACHE
Institution	**Al.I.Cuza University of Iasi**
Description	The projects aims at development of new research in scientific investigation of the artifacts from prehistory and proto history of Carpatho-Dniester area (metal, ceramics) in order to establish the period and area of origin of materials and samples analyzed, thus beeing able to assess the economical and social changes over time. Priority objectives aims to use modern methods of scientific investigation, non-invasive, through an experimental protocol based on complementary relationships involving conjunction and co-assistance interdisciplinary systems between diverse analyzing systems in order to establish both the elemental composition and archaeometric characteristics, and also the conservation state, the elucidation of deterioration and degradation and also the elucidation of the detrerioration and degradation state of studied artifacts. Post-Doc Research Project POSDRU/89/1.5/S/61104, Co-financed by EFS

R.29.

Title	**New imidazole based ionic liquids**
Authors	Costel Moldoveanu, Dan Astefanei, Dan Maftei, Gheorghita Zbancioc, Ioana Stoian, Ionel Mangalagiu
Institution	**Al. I. Cuza University, Faculty of Chemistry**
Description	Imidazole and its derivatives compounds are well known biologically active and medicinally potent anticancer, anti-HIV, antibacterial and antifungal, cardiovascular diseases, etc. Moreover, imidazolium salts are potent room temperature ionic liquids of current great interest in industry. The aim of this work was to synthesize new azaheterocyle salts derived from 1,3-diazoles via conventional heating and MW irradiation. In order to obtain the desired 1,3-diazole salts, we performed the alkylation of some five-member rings *N*-heterocyles derived from imidazole and

benzimidazole, under both classical heating and MW irradiation conditions.

Applications:

Dialkylimidazolium salts represent a class of ionic compounds with melting points lower than 100°C so called "ionic liquids".

The past decade has seen explosive growth of studies on ionic liquids for their diverse applications as catalyst, liquid crystals, green solvent in organic synthesis, and in separations, electrochemistry, photochemistry, CO_2 storage devices, etc. Ionic liquids have some unique characteristics including negligible volatility, non-flammability, high thermal stability, low melting point, broad liquid range, and controlled miscibility with organic compounds, which meets the demands of high performance lubricant.

R.30.

Title

The method for separating silver from dumps and alluvial deposits

Authors

Brânzilă Mihai[1], Bulgariu Dumitru[1,3], Sandu Ioan[2], Florea Florin[4]

Institution

[1]"Al. I. Cuza" University of Iasi, Faculty of Geography and Geology, [2]"Al. I. Cuza" University of Iasi, Arheoinvest Interdisciplinary Platform, [3]Romanian Academy, Filial of Iasi [3]Romanian Academy, Filial of Iasi, Collective of Geography, [4]SC Geomold SA Câmpulung Moldovenesc

Description

The invention relates to a method for separating silver from the tailings and alluvial deposits based on a combination of tradition squential solid-liquid extraction with the extraction in aqueous ecological polymer-inorganic salt two-phase systems. The method can be utilized for the separation of silver from dumps of the exploitation of various deposits of polymetallic ores and from alluvial deposits, where the average content of silver is below the limit imposed by the existing technological processes of extraction of silver. Compared with other current methods of extraction of silver, applied on an industrial scale, the method presented in this patent has several advantages: (i) allows recovery of silver from poor deposits (considered economically insignificant compared to current technologies) in acceptable economic and

environmental conditions; (ii) removes a number of disadvantages of current methods of industrial extraction of silver, mostly related to technology costs and pollution problems; (iii) the separation yields of silver are supperior in comparison with those obtained by currently applied processes to industrial scale; (iv) flexibility and adaptability to the type of material that is extracted silver. In addition the method can be adapted for the separation of other metals from mine wastes and alluvial deposits. The method described in the invention includes methodological details for each stage of work and the limits of applicability in relation to the source materials for silver.

Financial support for the studies was provided by the Ministry of Education and Research from Romania, ANCS – CNMP, grants PNCDI II no. 52-141 / 2008.

R.31.

Title **"Feedback" method for estimating the paleomediu conditions**

Authors Brânzilă Mihai[1], Bulgariu Dumitru[1,2], Rusu Constantin[1, 2]

Institution **[1]"Al. I. Cuza" University of Iasi, Faculty of Geography and Geology, [2]Romanian Academy, Filial of Iasi, [3]Romanian Academy, Filial of Iasi, Collective of Geography**

Description

The invention relates to a method for the estimation of conditions paleomediu based on the specific and selective evolution, in relation with the changes of environmental conditions, of mineral equilibriums and intre-phases distribution processe of some minor elements. The method allows the achievement of acceptable estimates for sedimentary deposits and for Quaternare and Neogene vulcanogen-sedimentary deposits in case of utilization as marker geochemical processes of the precipitation-dissolution-redeposition equilibriums of carbonates minerals, iron oxydes and oxy-hydroxides and silica gels. In principle, the method consists in the thermodynamic and kinetic interpretation of mineral processes sensible to the changes of environmental conditions, knowing the explicit thermodinamic and kinetic function which governing these processes and the chemical and mineralogical composition of marker minerals from different current geological formations, respectively. The estimations imprecision is determined by the accuracy

with which thermodynamic and kinetic equations describing the dynamics of mineral processes and the chemical and mineralogical analysis accuracy. The method described in the invention includes methodological details for each step of work, specifications about the optim selection way of minerals equilibriums and inter-phases distribution processes in relation the type and spatial extent of geological deposits, guidance on how to achieve the estimations and the relative imprecision level of them according to thermodynamic and kinetic models, the applicability limits of the method, respectively.

Financial support for the studies was provided by the Ministry of Education and Research from Romania, ANCS – CNMP, grants PNCDI II no. 52-141 / 2008.

R.32.

Title **Method for differential determination of speciation and distribution forms of heavy metals in soils**

Authors Dumitru Bulgariu[1, 3], Laura Bulgariu[2], Constantin Rusu[1, 3]

Institution **[1]"Al. I. Cuza" University of Iasi, Faculty of Geography and Geology, [2]Technical University Gheorghe Asachi of Iasi, Faculty of Chemical Engineering and Environmental Protection, [3]Romanian Academy, Filial of Iasi, Collective of Geography**

Description

The invention relates to a method of selective separation and differential determination of types and contents of heavy metals speciation and distribution forms in soils. The method can be used at: (i) estimation of direct and indirect risk potential of heavy metals in vegetables cultures; (ii) establish real tolerance levels of soil – water – plants systems towards heavy metals; (iii) determination of geochemical mobility and effective biodisponibility of heavy metals in soil – water – plants systems. The method described in this invention is based on: (i) separation of heavy metals occurrence forms in soils – by grain-size fractionation and by magnetic method of soil samples, followed by the differential separation using sequential solid-liquid extraction (in 7 steps) coupled with extraction in aqueous two-phase systems: organic polymer (polyethylene glycol, polyvinyl alcohol) - inorganic salt (Na_2SO_4, K_2HPO_4); (ii) determination of types and

contents of speciation and distribution forms of heavy metals – by atomic absorption, UV-VIS, IR and Raman spectrometry, electroanalytical methods (ion-selective sensors), optical and electronic microscopy; (iii) establish correlations between heavy metals contents and chemical-mineralogical components of soils – by geostatistic methods and theoretical modeling (thermidynamic and kinetic). The procedure described by invention includes methodological details for each work step and applicability limits for several heavy metals (Cd, Pb, Cr, Ni, Co) in case of soils cultivated with vegetables.

Financial support for the studies was provided by the Ministry of Education and Research from Romania, ANCS – CNMP, grants PNCDI II no. 52-141 / 2008.

R.33.

Title **Recuperative decontamination procedure of soils polluted with heavy metals by electro-kinetic methods**

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Description The invention relates to a recuperative decontamination procedure of soils polluted with heavy metals by combining in a uniform process of three of the most effective decontamination method: electrokinetic, extraction and decontamination – chemo-remediation with ecological polymers. The procedure advantages are: (i) by optimizing the three methods in a single procedure was performed a technological, environmental and economic „compromise formula", high as efficiency and cost, (ii) allows both the decontamination of polluted soils and partial recuperation of heavy metals, that their reintroduction into the economic circuit, (iii) good application potential (efficiency, selectivity, flexibility and adaptability), acceptable costs of implementation and exploitation. The procedure described in invention is based on: (i) controlled modification of physical-chemical properties of soil and of ionic species mobility by

treatment with ecological polymers saline solution; (ii) selective modification of adsorption – desorption equilibriums and differential electromigration of ionic species under the action of an electric field; (iii) local concentration (near to electrodes) and immobilization of ionic species, followed by their elimination from soils and processing economic purpose. The procedure described by invention includes methodological details for each work step and applicability limits for several heavy metals (Cd, Pb, Cr, Ni, Co) in case of soils cultivated with vegetables.

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R.34.

Title

Selective separation procedure of gold(III) from wastes by extraction in aqueous two-phase systems

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Description

This invention relates to the description of selective separation procedure of gold(III) from wastes, by extraction in aqueous two- phase systems, formed from an organic polymer (polyethylene glycol, PEG) and an inorganic salt (ammonia sulphate). The utilization of aqueous PEG-based two-phase systems for the extraction of precious metals, in special of gold, has a great potential due to their non-toxicity, durability and relatively low cost of preparation. In such extraction systems, the gold(III) can be selectively separated after wastes dissolution in presence of chloride ions, as extracting agents. The procedure described in this invention included: (i) the methodology for preparation of aqueous two-phase system adequate for gold extraction: type and characteristics (pH, concentration) of phase-forming salt, optimum concentration and molecular mass of polyethylene glycol, mixing ration of the phases and contact time; (ii) concentration range of chloride extracting agents; (iii) experimental conditions required for the efficient extraction of gold(III); (iv) efficiency, selectivity and implementation

limits of the extraction procedure. The main advantage of this procedure is that allows the selective separation of gold(III) from wastes by a eco-friendly method which has acceptable costs of implementation and exploitation. The procedure described in this invention includes methodological details for each work step and applicability limits for gold extraction from electric wastes.

R.35.

Title **DrinkWarmer**

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Description

The device is intended for heating a beverage by exothermically dissolving calcium chloride in water in optimal quantities. The device consists of two cups (a bigger one, made of plastic, and a smaller one, made of aluminum) placed one in another. The small cup is filled with the desired drink. The space between the cups is separated into two compartments (one for water and one for CaCl2) by two perforated plastic lamellas, one fixed and one mobile. By pressing a button underneath the device, the mobile lamella rises and the lamellas' holes overlap, so the water enters the space with CaCl2 and the drink warming begins. The device has a lid with which can be covered and can be taken anywhere.

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THE PALACE OF CHILDREN, IAȘI

"The Palace of children is an educational institution which deals specific instructive- educational activities outside school classes, where children complete their knowledge and go thoroughly into some domains, develop skills according to their calling and options and where their spare time may be organized in educational programs. These free activities may be attended, according to their own choice by children under the school-age, elementary school children, middle school, vocational school and high school students as well as children coming from orphanages, irrespective of nationality, sex and religion, according to their interest, skills and preferences." (Excerpt from the Regulations of organisation and functioning of Clubs and Palaces of Children)

Founded in 1953 under the denomination of the House of Pioneers with only seven clubs, the present Palace of Children has undergone dramatic changes as far as the number of clubs and their diversity is concerned.

Nowadays the Palace of Children functions with sixty clubs focused on cultural, artistic, technical, practical, scientific, sportive and touristic domains. They appeal to the 76.154 children in kindergardens, elementary schools, middle schools, vocational schools and high schools in Iași.

The institution owns the apparatus and materials necessary for the good working of the clubs. At present, the Palace of Children has connections with similar institutions in 12 countries on 3 continents.

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PALATUL COPIILOR, IAŞI

"Palatul Copiilor este o instituţie de învăţământ în care se desfăşoară activităţi instructiv-educative specifice, în afara cursurilor şcolare, prin care se aprofundează şi se completează cunoştinţe, se dezvoltă aptitudini potrivit vocaţiei şi optiunilor copiilor, se organizează petrecerea timpului liber prin programe educative.

La activităţi pot participa în mod gratuit şi la libera alegere, copii preşcolari şi elevi din ciclul primar, gimnazial, profesional, liceal şi din casele de copii, fara deosebire de nationalitate, sex şi religie, corespunzator intereselor, aptitudinilor şi preferinţelor lor."

(Extras din Regulamentul de organizare şi funcţionare a cluburilor şi palatelor copiilor)

Înfiinţat în anul 1953, sub denumirea de Casa Pionierilor, având un număr de 7 cercuri, actualul Palat al Copiilor a cunoscut o dinamica puternică în ceea ce priveşte numărul de cercuri şi diversitatea lor.

În prezent la Palatul Copiilor functionează un număr de 60 de cercuri cu profile din domeniile cultural-artistice, tehnico-ştiintifice, tehnico-aplicative şi sportiv-turistice. Acestea se adresează celor 76,154 de copii din grădiniţe, şcoli primare, gimnaziale, profesionale şi liceale din municipiul Iaşi.

Activităţile sunt conduse de o echipa de cadre didactice calificată şi specializată pentru activitatile de timp liber, formată din profesori, ingineri, maiştri coregrafi şi antrenori.

Unitatea este dotată cu aparatură şi materialele necesare unei bune desfăşurări a activităţii specifice din cercuri. În prezent, Palatul Copiilor întreţine legături cu unităţi de profil similar din 12 ţări, de pe 3 continente.

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