



NATIONAL INSTITUTE FOR RESEARCH AND
DEVELOPMENT IN ELECTRICAL ENGINEERING ICPE-CA

ANNUAL REPORT

2009

Foreword

In 2004 our institute - National Institute for Research & Development in Electrical Engineering ICPE - Advanced Researches - has become a national institute.

We can look back with great satisfaction, because these years have meant a continuous progress, scientific and technological, economic and social. This statement seems, in light of the latest "shortening" of financing in 2009, a little too optimistic; it is not so and we will explain why. Scientific progress is confirmed by increasing our contribution to knowledge - this is proved by a large number of scientific articles published in well-known journals. Technological success is underlined by the large number of products, studies and certifications, of famous technology transfer made by the institute. Here we mention that the 5 kW fuel cell with electrical-thermal cogeneration transferred to ROSEAL - Odorheiu Secuiesc, the generators for 1.5 kW and 3 kW wind installation transferred to Electroprecizia - Sacele and 1.5 kW wind installation transferred to ROFEP - Urziceni. The last two transfers were made only by our own partners' efforts.

Should be viewed as technological success and our participation to Bucharest International Fair (TIB) 2009 within the Research Show, with an exhibition stand equipped with most achievements for the economy: a part acquired under financing of the First National Programme (PN I), a part supported by internal financing of our institute. From a social perspective, ICPE-CA came out in 2009 strengthened: ICPE-CA employee is confident in their powers, in ICPE-CA ability to overcome hardships, is aimed at solving economic issues and now find more connections to the usefully social.

These achievements of 2009 contribute to the strategic objectives required by the mission of the institute.

The report is given in detail our work in 2009, being as a statement by the National Authority for Scientific Research.

The report will be available on our website <http://www.icpe-ca.ro>.

Those who read this paper will be convinced that the ICPE-CA employees have worked in a large number of projects in Second National Programme (PN II), Nucleus Programme and international programmes (bilateral cooperation, structural funds).

Public presentation of the Annual Report 2008, supported in June 2009, in the event „Open Gates of INCDIE ICPE-CA to entities” confirmed our place in the system and our wishes to cooperate with all research entities from Romania.

2009 is the first year in which runs the structural project POS-CCE Axis II, which completed the ICPE-CA facilities; until February 2011 the project will complete this facility and allow the improvement of several laboratories.

Economic agreements and research projects with IUCN - Dubna, CERN - Geneva brought us many satisfactions. In August we organized, at our headquarters, in the FAIR project, the consortium meeting.

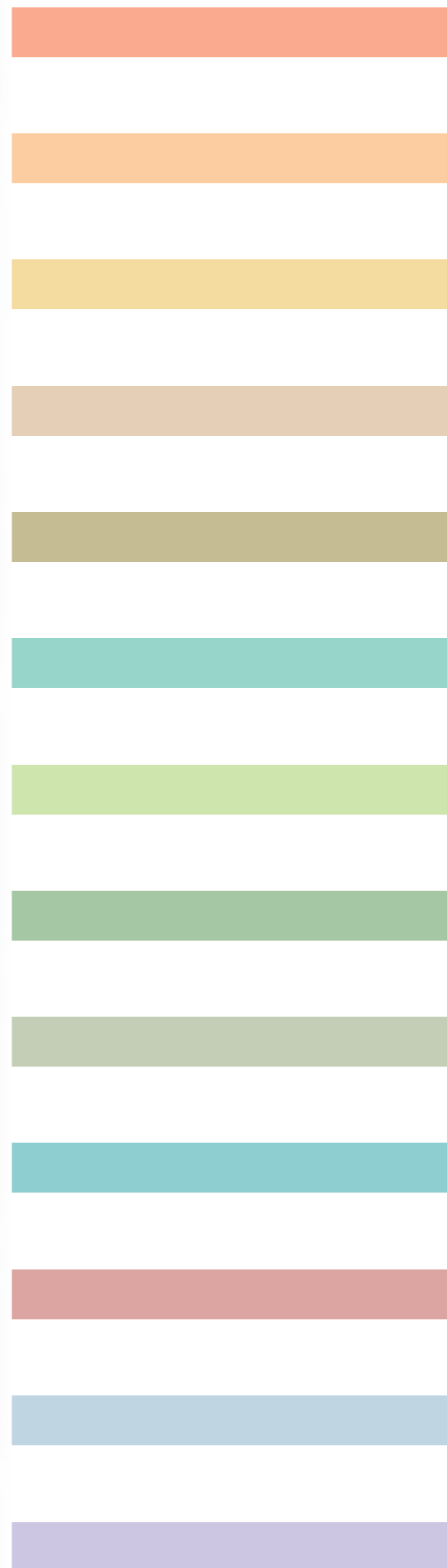
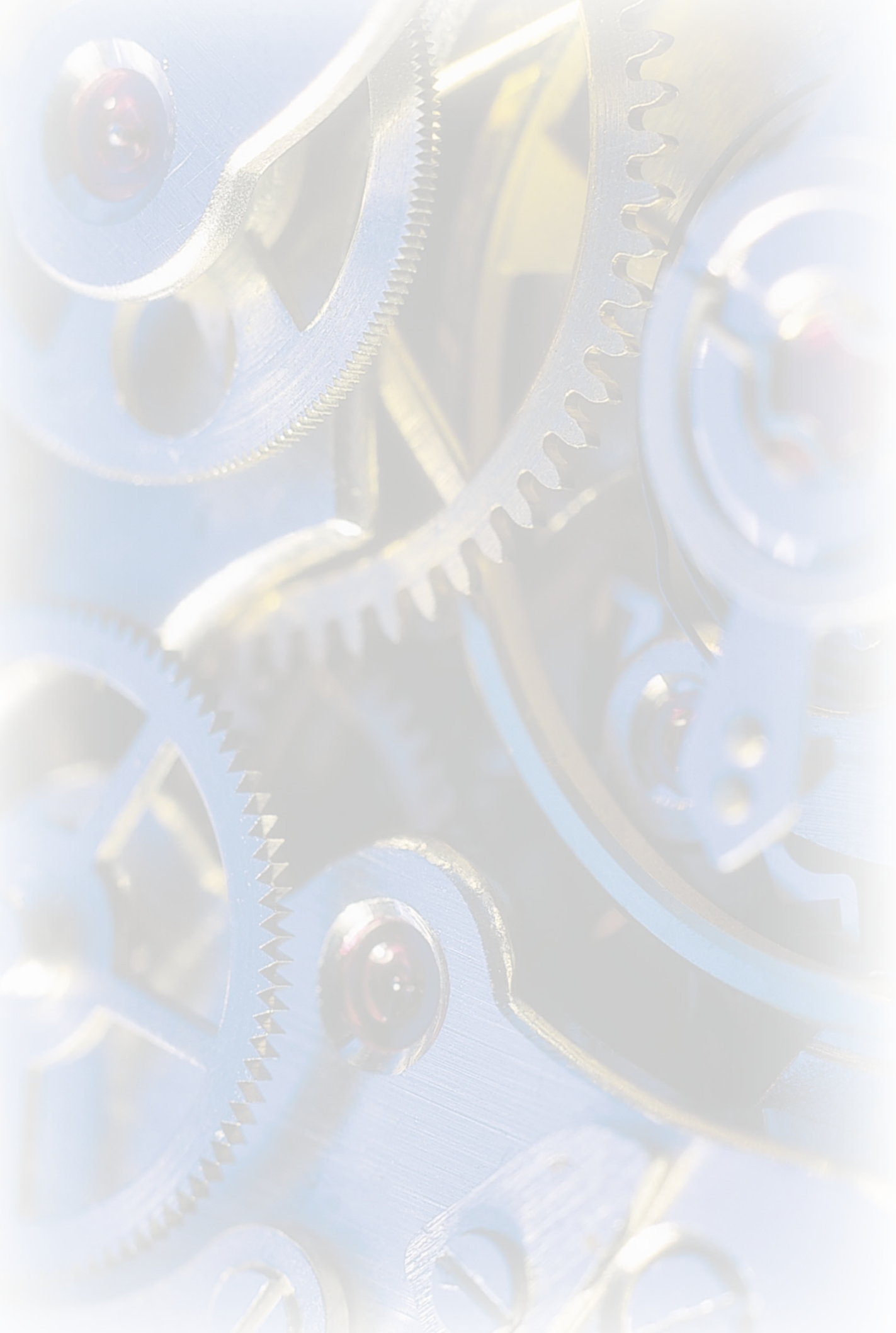
Dear colleagues, thank you for what you achieved in 2009. Thanks also to our colleagues at country and abroad, without their contribution this report would not have been so rich.

Board members, who approved our strategy, have facilitated its feasibility and have monitored it, the Scientific Council of ICPE-CA, those who prepared this report, and last but not least, members of the Directory Board, with which we assured the daily coordination of ICPE-CA effort, we express our thanks.

Bucharest, March 15, 2010

Wilhelm Kappel
General Director





The institute in brief	Pag. 6 - 13
Fields of activities and researches developed in INCDIE ICPE-CA	Pag. 14 - 23
1. Identification data	Pag. 24 - 27
2. Brief introduction	Pag. 28 - 33
3. Management structure	Pag. 34 - 37
4. Synthetic view of economical and financial report	Pag. 26 - 59
5. Structure of R&D human resource	Pag. 50 - 55
6. R&D infrastructure	Pag. 56 - 81
7. Results of R&D activity	Pag. 82 - 131
8. Measures to increase the prestige and visibility of INCDIE ICPE-CA	Pag. 132 - 151
9. Information and documentation from scientifically and technical patrimony of INCDIE ICPE-CA	Pag. 152 - 155
10. Conclusions	Pag. 156 - 159
11. Expectations / priorities for this year	Pag. 160 - 164



The institute in brief

Mission of INCDIE ICPE-CA	8
Vision INCDIE ICPE-CA	8
Activities and contracts in progress	12
Researches finalized by materials, products, devices and technologies	12
Technologies and services	13

The institute in brief

In 2004, in August, by the decision of the Government no. 1282 published in Official Monitor no. 775/24.08.04 has been founded National Institute for Research and Development in Electrical Engineering ICPE-CA Bucharest (INCDIE ICPE-CA), through reorganization of SC ICPE – Advanced Researches SA. The patrimony of the institute, formed by taking over assets and liabilities of the former company, consists of private ownership of state assets, which it has under management, and of their goods.

ICPE-Advanced Research today is a national institute, which carries out the tradition, recognized in electrical engineering. The institute has an important scientific basis in the field, INCDIE ICPE - CA occupies a well-defined national position, being among the most active and efficient research units.

Vision INCDIE ICPE-CA

INCDIE ICPE-CA will become the promoter in electrical engineering progress based on knowledge.

Mission INCDIE ICPE-CA

INCDIE ICPE-CA promotes and takes applied research in national and international background in electrical engineering (materials, electrotechnology, new energy sources, dynamic balancing and vibration, electromagnetic compatibility, etc.) benefit to companies, private and public, for the benefit of the whole society.

Developing technological innovation for customers, ICPE-CA increases their competitiveness both in Romania and in Europe. Research activities carried promotes economic development of society and lead to social welfare, in compatibility with environment.

For institute employees, ICPE-CA offers personal development professional qualification which will enable them to occupy positions of responsibility at the level of the institute, in industry and in other scientific fields.

The mission is defined, achievable (due ICPE-CA skills and creativity of employees), informative, accurate, reflect reality (values and culture) of ICPE-CA, and is oriented towards beneficiaries.

In strategy developed by the institute during the period 2006 - 2013, research activities should contribute to:

- reach the level of compatibility and competitiveness necessary for integration into the European research area;
- participation in RDT Framework Programme 7 of the European Union for the period 2007-2013;
- developing social, economic, competitive and dynamic, oriented high-tech fields, able to meet the strategic long-term development in the globalized economy.

What characterizes today INCDIE ICPE-CA attention is fundamental and applied research and development, with particular emphasis placed on Research-Development-Innovation in the field of energy, materials and micro & nano technologies, the engine of sustainable development of society.

Main activities include:

- basic and applied research in the field of electrical engineering;
- technical assistance and consultancy in the field of electrical engineering;
- information, documentation and training personnel in electrical engineering.

The Institute is involved in 3 main research directions:

- advanced materials: functional / multifunctional, crystalline and nanostructured materials and composites;
- new energy sources (wind, solar, fuel cells, hydrogen storage): conversion, saving and recovery;
- microelectromechanical technologies and systems.

The main research groups in the INCDIE ICPE - CA are focused on the following areas of interest:

- ✿ Multifunctional metallic materials
- ✿ Advanced carbonic materials
- ✿ Magnetic materials, micro and nanostructured materials
- ✿ Gas hydrodynamics
- ✿ Advanced ceramic materials
- ✿ Polymeric materials
- ✿ Dielectric and ferroelectric materials
- ✿ New sources of energy
- ✿ Electromechanical engineering
- ✿ Electrotechnologies
- ✿ Vibration and dynamic balancing
- ✿ Biology
- ✿ Characterization and testing of electrical engineering materials and products
- ✿ Bioelectromagnetic compatibility
- ✿ Evaluation of thermal behavior of products and materials by thermal analysis
- ✿ Electromagnetic compatibility - anechoic chamber
- ✿ MEMS and NEMS measurements
- ✿ Processing of microelectromechanics systems

Viziunea INCDIE ICPE-CA

INCDIE ICPE-CA va deveni în *inginerie electrică* promotorul progresului bazat pe cunoaştere.



- Certification of the Integrated Quality- Environment Management System
- Consulting, expertise in the assurance of industrial property protection through patents, trademarks and designs.

INCDIE ICPE-CA operates through its representatives as members in the European platform: EuMaT - Steering Committee; H2 & Fuel Cell - Mirror Group; Manufuture (member) and national: EuMaT Platform in Romania; National Group of Reflectance EuMaT; Platform for hydrogen and Fuel Cells in Romania and the Alliance for hydrogen and fuel cells), as well as other professional associations: National Technical Committees of Romanian Standards Association (member): CT 19 "Environmental conditions, classification and methods of test for electrical and electronic products and systems", (designated person – Dr. Eng. Georgeta Alecu), CT 20 "Magnetic components and ferrites materials", (designated persons – Dr. Eng. Mirela Codescu and Prof. Dr. Wilhelm Kappel), CT 30 "Electromagnetic compatibility and Radio Interference", (designated person – Dr. Eng. Georgeta Alecu), CT 378 "Nanotechnologies", (designated persons: Dr. Eng. Mircea Ignat and Dr. Eng. Gabriela Hristea); IEEE Society – USA (members: Enescu Elena, Iosif Lingvay, Bondar Ana Maria, Moisin Ana Maria, Neamtu Jenica, Popovici Iuliu, Tardei Christu, Tanasescu Florin Teodor, Iordache Iulian, Jipa Silviu, Bala Constantin, Patroi Eros-Alexandru, Erdei Remus, Codescu Mirela, Lungu Magdalena, Alecu Georgeta, Velciu Georgeta, Tsakiris Violeta, Lucaci Mariana, Zaharescu Traian, Ignat Mircea, Puflea Ioan, Bara Adela, Pintea Jana, Kappel Wilhelm); SRMM (Romanian Society of Magnetic Materials) affiliated at UKMS (UK Society of Magnetic Materials); SRMP (Romanian Society of Powder Metallurgy), SRMC (Romanian Society of Carbonic Materials), ARM (Romanian Society of Materials), Romanian Society of Ceramics, Romanian Society of Physics, Romanian Society of Biomaterials, Romanian Federation of Biomedical Engineering, CER (Romanian Committee of Electrical Engineering), ARIES (Romanian Association of Electronics and Software), CCIRMB (Chamber of Commerce and Industry of Romania), thus contributing to the harmonization of the Romanian policy research with the European ones.

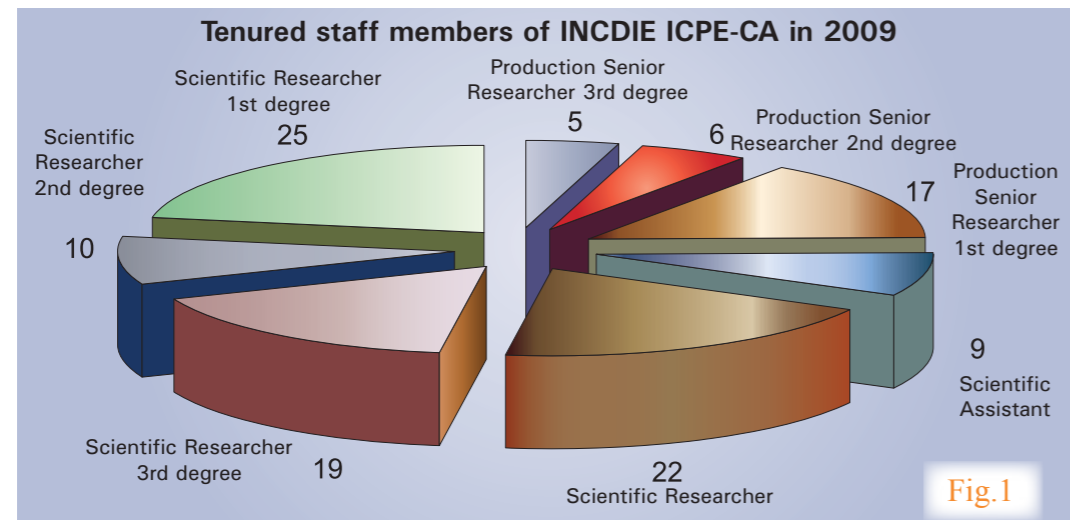


Fig.1

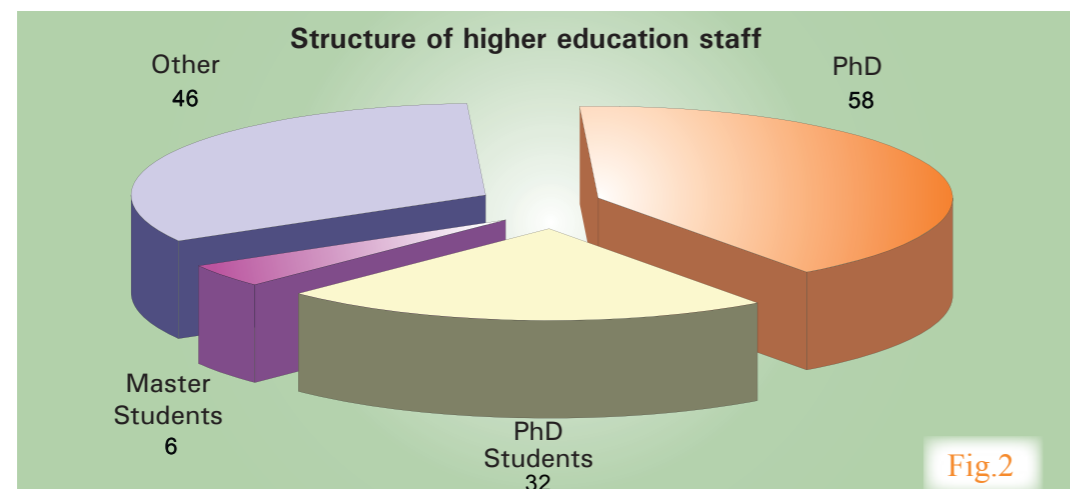


Fig.2

Institute staff in 2009, as can be seen from the chart above (fig. 1 and 2), is composed of high-class specialists who have a high potential for assimilation of the latest technologies in the field and always adapting to the market requirements. Thus, in proportion of 71% of those 199 employees with higher education, 58 are doctors, 32 are PhD students having quite different specializations (physics, chemistry, electrotechnics, metallurgy, mechanics, and biology) and 6 are master students.

Financing of its activities is done mainly by The National Research and Development Programmes, the Nucleus Programme, and in the framework of grants and projects financed from EU programmes.

Evolution of turnover for the past five years (fig. 3) reveals the dynamics of the institute development in 2005 - 2008.

Evolution of turnover for the past four years (fig. 3) reveals the dynamics of the institute development between 2005 and 2008. By the drastic reduction of research funds in 2009, the turnover dropped to 21,935,678 lei. This reduction caused, comparing Fig. 3 and 4, mainly, by drastic reduction of investment in equipment compared to 2008.

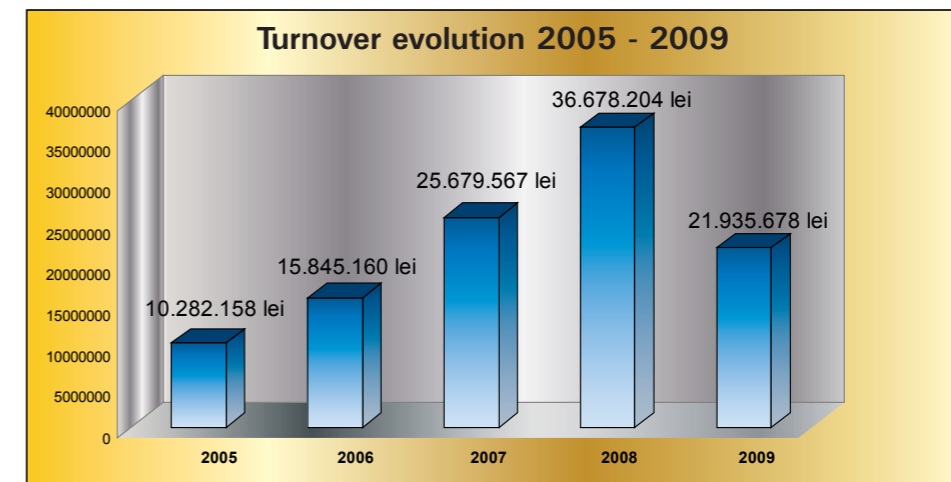


Fig. 3

Increasing the volume of investment, both for its own and attracted funding sources, and from budgetary sources, as it is presented in Fig. 4, allowed the institute and the research staff, on the one hand, the new directions of research, on the other hand, to increase the quality of research.

Even in 2009 when funds for investment in equipment were reduced, ICPE-CA has improved the investment in equipment by PROMIT project, POS-CCE Axis II.

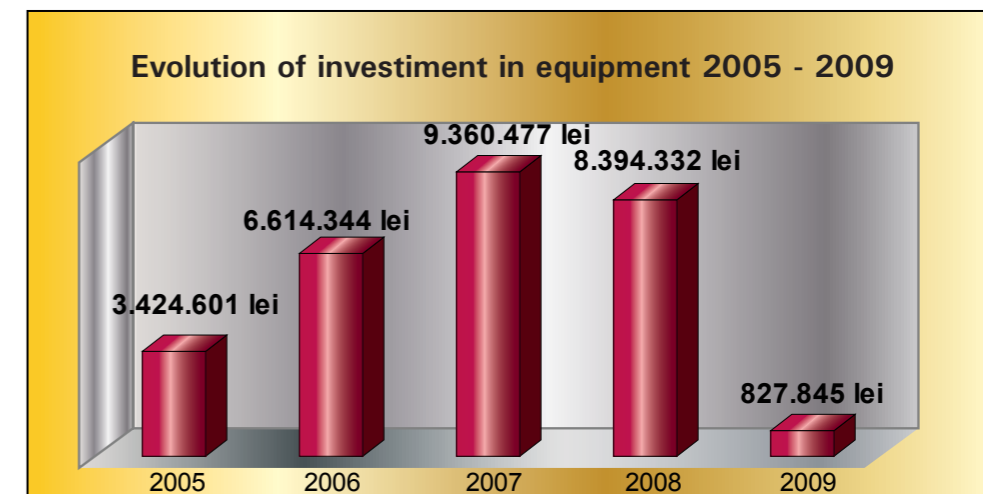


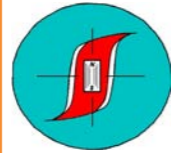
Fig. 4

Activities and contracts in progress:

- Basic and applied research in the Nucleus Programme and National Programme of Research-Development-Innovation II, as well as research grants and projects financed from EU Programmes, as follows:
 - o 39 projects in coordination and 47 projects as partners in National Programme R- D-I II and Nucleus Programme;
 - o 13 international projects including:
 - - 8 international projects (8 bilateral cooperation with Switzerland, Russia and Germany);
 - - 1 project in FP7-2007-regpot 206119 "Promotion of Competence to Up-Grade the RTD Potential in Science and Technology";
 - - 1 project in FP7 REGPOT-2008-1 "Developing RTD Potential of INC DIE ICPE-CA in the Field of Hydrogen and Fuel Cell Technologies (ICPE-HyFC)";
 - - 1 project in Competitiveness & Innovation Framework Programme ENT/CIP/07/0001a "Business Innovation Support Network Transylvania";
 - - 1 project in cooperation with Università degli Studi di Trento in European project PolyCerNet contract MRTN-CT-2005 01601;
 - - 1 structural funds project PROMIT, POS-CCE Axis II.
- Applied research in the field of environmental protection;



Practical application of research results and patents through technological transfers, sales license (within the Technological Transfer Center CTT – ICPE-CA);



MAG SRL;

Practical application through the development of spin-off: SC ROMNEO-



Technical and logistical support for incubation and development of business (by SMEs) in the field of electrical engineering by the Incubation Office - ITA ECOMAT ICPE-CA – having the headquarter in Sf. Gheorghe city;

- Small-scale manufacturing of materials processed in different shapes and sizes, at customer demand;
- Small-scale manufacturing of some complex applications: sensors, actuators, magnetic couplings, transducers, equipment to control the electrochemical corrosions, stands/systems for monitoring, verification and control of electrical and environmental parameters;
- Application of techniques of vacuum thin layers deposition;
- Application of techniques for structural changes of hardening metal surfaces by electrons beam;
- Characterization and testing materials in laboratories certified by RENAR (Romanian Accreditation Association);
- Consulting in the field of intellectual property;
- Import-Export;
- International cooperation;
- Organization of scientific events, fairs and exhibitions;
- Certification.

Researches finalized by materials, products, devices and technologies

- **multifunctional metallic materials:** AgW, AgNi, AgCdO, AgC, AgNiC, AgSnO₂, WCu, WniCu;
- **composite materials for hydrogen storage of type Fe-Ti, LaNi₅, Mg-Ni, Zr-Ni;**
- **materials for fuel cells of type PEM and SOFC;**
- **sintered soft magnetic materials** of Fe, FeNi, FeCo, FeP, FeSi, agglomerated from Fe-bonded;
- **advanced carbonic materials:** granulated composite C/C; granulated composite materials C/metal, expanded graphite; composites C/ceramics;
- **magnetic, micro and nanostructured materials:** NdFeB sintered usable up to 200°C and agglomerated; AlNiCo with low, medium, high, isotropic and anisotropic coercitive field, of high magnetic energy; industrial magnetic steel; nanostructured composites; ceramic superconductors with high transition temperature; screens and filters from composite magnetic materials for non-ionizing electromagnetic radiations; giant magnetoresistance (MRG);
- **advanced ceramic materials:** steatite; cordierite; superalumina; electroconducting; based on

- ZnO; biocompatible; oxide – non-oxide; non-oxidic; ceramic composites; dielectric and ferroelectric materials: piezoceramic sub-layers; piezoelectric materials; dielectric materials;
- **electromechanical engineering:** gas sensors; electromechanical, piezoelectric, magnetostrictiv actuators; 5 kW generators for new energy sources;
- **thin layers** in the range 0.1 – 5 μm for applications of thin decorative layer deposition;
- **deposits of thin and hard layers which are lubricant and wear resistant;**
- **deposits of thin anti-corrosion layers;**
- **materials with structural changes to the metals surface;**
- **electrochemical technologies and active anti-corrosive protection:** electroprotection device for metallic structures operating in explosive atmospheres (DES); protection device for medium and high voltage underground cables (DPC); device for electroprotection and electrical uncoupling (DPS 150Z);
- **techniques and technologies of analysis, industrial diagnosis and vibrations control:** 1 or 2 planes dynamic balancing machines; measurement and control device of vibrations; inductive and piezoelectric transducers of vibrations; computerized stands for measuring of main characteristics of combustion engine and electrical motors;
- **polymeric materials processed by irradiation and luminescence phenomena:** development of equipment; original techniques for recycling of waste: recovery technology;
- **fytochemicals obtained by extraction from plants having the role of antioxidants, antirad and antitumoral.**

Technologies and services:

- Technologies to obtain advanced materials;
- Technical assistance and technological transfer of research results;
- Recovery of metallic waste;
- Technologies for renewable energies;
- Microelectromechanical technologies;
- Technical assistance and technology transfer;
- System design for active anticorrosion protection;
- Energy optimization in electrochemical technologies;
- Materials properties at extreme temperatures;
- Materials and their properties;
- Electromagnetic and bioelectromagnetic compatibility;
- Thermal behavior of materials and products;
- Testing for micro- and nanoelectromechanics;
- Consulting in IPR.



Fields of activities and researches developed in INCDIE ICPE-CA

Fields of activities and researches developed in INCDIE ICPE-CA _____ 16

Fields of activities and researches developed in INCDIE ICPE-CA

D02 Juridical Offices, Human Resources, Intellectual Property, Secret Documents, Work Protection And Public Relations

Group Leader: Legal Adviser,
Mariana LUNGU

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Phone: (+40-21)346.82.97 / 136
Fax: (+40-21)346.82.99

FIELDS OF ACTIVITY

- ✎ Legal assistance;
- ✎ Human resources keeping;
- ✎ Consulting in the field of intellectual property;
- ✎ Secret documents evidence;
- ✎ Monitoring on work protection;
- ✎ Public relations.

D04 Quality Management, Quality Assurance & Technical Quality Control, Environment Protection Office

Office Leader: Dr. Eng.
Georgeta ALECU

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Phone: (+40-21)346.72.31 / 112
Fax: (+40-21)346.82.99

RESEARCH AREA

- ✎ Monitoring the Quality Assurance & Quality Technical Control and environment protection in INCDIE ICPE-CA;
- ✎ Support materials for certification/training in the management systems of the institute managerial staff and operative staff;
- ✎ Testing and control system of environment quality for obtaining of clean technologies in the field of magnetic materials.

D05 Marketing Office, Linking To Mass Media, Technical Library

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Phone: (+40-21)346.82.97 / 152
Fax: (+40-21)346.82.99

FIELDS OF ACTIVITY

- ✎ Standard and electronic (internet) marketing for the institute;
- ✎ Developing of the laboratories interconnection for communications, reports and dissemination of information;
- ✎ Developing of interconnection with other entities, research networks, consortium to obtain partnerships, regional programmes, databases;
- ✎ Developing the own base of information through acquisition of books and subscriptions to specialized journals;
- ✎ Organizing of scientific events; participation at fairs and exhibitions;
- ✎ Marketing for promoting of the patents, products, equipment and services developed by the institute.

D 06 Branch Sf. Gheorghe – Technology And Business Incubator

ITA ECOMAT ICPE-CA

Group Leader: Eng.
Remus ERDEI
E-mail: remus_erdei@icpe-ca.ro
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FIELDS OF ACTIVITY

- ✎ Supporting the establishment and development of SMEs in industry and services in the field of electrical engineering, advanced materials, new energy sources, ecological technologies, IT;
- ✎ Identify of business projects;
- ✎ Developing of partnership;
- ✎ Project initiation in the R&D National and International Programmes;
- ✎ Increasing the use of research results and patents;
- ✎ Creating new jobs, regional economic development;
- ✎ Improvement of SMEs access to information, consulting services, financing sources as well as R&D services and equipment.

D1.1, D2.1 Programmes Monitoring. Planning Office

Group Leader: Accountant
Dorina DOBRIN

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plan@icpe-ca.ro
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Fax: (+40-21)346.82.99

FIELDS OF ACTIVITY

- ✎ Monitoring the research projects;
- ✎ Monitoring of contracts;
- ✎ Planning of income / expenditure;
- ✎ Planning / monitoring of staff overcharge;
- ✎ Billing operations;
- ✎ Elaboration of specific statistics.

D1.2 Group for Multifunctional Metallic Materials

Group Leader: Dr. Eng.

Mariana LUCACI
E-mail: lucaci@icpe-ca.ro
Phone: (+40-21)346.72.31/109
Fax: (+40-21)346.82.99

RESEARCH AREA

- ✎ micro and nanocrystalline powders;
- ✎ metallic materials for advanced structural applications;
- ✎ Porous metallic materials;
- ✎ Powders of refractory intermetallic compounds;
- ✎ Hydrogen storage materials;
- ✎ Soft magnetic materials;
- ✎ Heavy alloys;
- ✎ Sintered conducting metallic materials;
- ✎ Other functional metallic materials.

D 1.3 Group for Advanced Carbon Materials

Group Leader: Eng. Phys.

Iulian IORDACHE
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Phone: (+40-21)346.72.31 / 145
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RESEARCH AREA

- ✎ Advanced carbon materials;
- ✎ New materials for electronic packaging;
- ✎ Activated carbon;
- ✎ Carbon materials for tribologic applications;
- ✎ Advanced materials for electromagnetic shielding;
- ✎ Materials for fuel cells.

D 1.4 Group for Micro And Nanostructured Magnetic Materials

Group Leader: Dr. Phys.

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RESEARCH AREA

- ✎ Magnetic nanocomposite materials based on rare earth;
- ✎ Hard magnetic materials based on NdFeB, with high thermal stability;
- ✎ Smart materials based on Fe-Cu diluted alloys;
- ✎ Microsystems of magnetic multilayer with giant magnetoresistance effect (GMR) and tunnel magnetoresistance (TMR) for spintronics;
- ✎ Nanostructured multifunctional materials for sensors and actuators applications.

D 1.5 Group for Gaso Hydro Dynamics

Group Leader: Prof. Dr.

Eng. Gheorghe BĂRAN

E-mail: baran_gheorghe@yahoo.co.uk

Phone: (+40-21) 402.94.86

Fax: (+40-21)346.82.99

RESEARCH AREA

- ✎ Hydrodynamics and Fluids Mechanics;
- ✎ Methods, technologies, systems and equipment to protect and rehabilitate the environment;
- ✎ New and non-conventional technologies to obtain, produce and storage of energy.

D 1.6 Group for Advanced Ceramic Materials

Group Leader: Eng.

Cristian ȘEITAN

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RESEARCH AREA

- ✎ Ceramic composite materials with electrochemical properties for fuel cells;
- ✎ Oxidic and non-oxidic ceramic biomaterials for medical devices and orthopedic surgery;
- ✎ Hydroxide apatite biomaterials and nano-powders obtained by sol-gel methods;
- ✎ Ceramic composite materials with advanced thermo technical properties;
- ✎ Cleaning of some ceramic materials by partial substitution of the lead;
- ✎ Modern techniques of separation and filtration of different environments;
- ✎ Integrated technologies for the usage of vitreous SiO₂ to obtain ceramics and composites.

D 1.7 Group For Polymeric Materials Processed By Irradiation And Luminescence Phenomena

Group Leader: Dr.

Traian ZAHARESCU

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RESEARCH AREA

- ✎ New methods, non-conventional, to obtain materials or change the materials in order to improve their properties;
- ✎ New investigation and analysis of materials, including design of appropriate equipment based on luminescence phenomena or other physical-chemical effects in order to improve the use;
- ✎ Original procedures for recycling of some wastes;
- ✎ Characterization of protection activity for

D 1.7 Polymeric Materials

- ✎ antioxidants compounds in the processes of thermal, photochemical and radiochemical aging for polymeric materials;
- ✎ Diagnosis of polymeric materials degradation and lifetime estimate in different stress conditions;
- ✎ Obtaining of thermo-phosphorus to evaluate the accidental and professional radiation dose.

D 1.9 Group for New Energy Sources

Group Leader: Dr. Eng.

Sergiu NICOLAIE

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Phone: (+40-21)346.72.31/208

Fax: (+40-21)346.82.99

RESEARCH AREA

- ✎ Hydrodynamics and aerodynamics of hydraulic and wind rotors;
- ✎ Electric power generators from renewable sources for isolated areas.

D 1.10 Group for Electromechanical Engineering

Group Leader: Dr. Eng.

Mircea IGNAT

E-mail: mignat@icpe-ca.ro

Phone: (+40-21)346.72.31 / 204

Fax: (+40-21)346.82.99

RESEARCH AREA

- ✎ Electromechanical components: linear multilayer piezoelectric microactuators, magnetostrictiv microactuators, electrothermal microactuators, electrochemical microactuators, rotary piezoelectric micromotors;
- ✎ Sensors: inductive displacement sensors for monitoring landslides, piezoelectric vibration microsensors, microsensors by mechanical tension;
- ✎ Electrical machine: 5KW synchronous generators for wind power, asynchronous micromotors with reversed structure, design of high power synchronous generators;
- ✎ Electrical engineering applications of superconductors;
- ✎ Gas sensors (CO, CO₂, NO_x, H).

D 1.11 Group for Electrotechnologies

Group Leader: Eng.

Carmen LINGVAY

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RESEARCH AREA

- ✎ Materials degradation by corrosion, the control of corrosion in different natural and industrial environments;
- ✎ Electromagnetic environment pollution, dispersion stray currents;
- ✎ Complex systems for electrosecurity and active protection against corrosion of underground metallic pipes;
- ✎ System of protection against corrosion and systems of increasing the maintenance and reliability of underground power cables;
- ✎ Small-scale manufacturing of some materials and devices for complex electrosecurity systems and active protection systems against corrosion;
- ✎ Technical assistance and consulting in the field of corrosion.

D 1.12 Group for Vibrations And Dynamic Balancing

<p>Group Leader: Eng. Iuliu POPOVICI E-mail: popovici@icpe-ca.ro Phone: (+40-21)346.72.31/207; 0744.311.591 Fax: (+40-21)346.82.99</p>	<p style="text-align: center;">RESEARCH AREA</p> <ul style="list-style-type: none"> ✎ Dynamic balancing machine for rotating pieces; ✎ Vibration equipment and vibration measurements; ✎ Stands / computerized systems for measuring, testing and control of electrical, mechanical and environment parameters; ✎ Renewable energy.
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D 1.13 Group for Biology

<p>Group Leader: Biologist Nicoleta BURUNȚEA E-mail: nburuntea@icpe-ca.ro Phone: (+40-21)346.72.31/134 Fax: (+40-21)346.82.99</p>	<p style="text-align: center;">RESEARCH FIELD</p> <ul style="list-style-type: none"> ✎ Determining the antifungal properties of some products based on creosols, selective demonstrated on some species of molds insolated in new biotopes for the country; ✎ Controlled method of microorganisms in infrastructures from the subway tunnels; ✎ Determining the antifungal properties of silver nanopowder included in different materials; ✎ Determining the molds species involved in biodegradation of heritage objects; ✎ Determining the resistance to mold of different materials - composites, polyethylene, electrotechnical materials, and leather.
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D 2.2 Pilot Station for Functional Materials

<p>Group Leader: Chem. Paula LUNGU E-mail: plungu@icpe-ca.ro Phone: (+40-21)346.72.31/106 Fax: (+40-21)346.82.99</p>	<p style="text-align: center;">FIELDS OF ACTIVITY</p> <ul style="list-style-type: none"> ✎ Research (contributions at D1.2 group activities); ✎ Develop of small-scale products: materials and electrical contracts for switching air (parts, rivets, plated wires and materials); sintered and polymerized soft magnetic materials; parts from sintered heavy alloys; silver powder obtained by electrolytic process; ✎ Services for others: thermal treatments (in air, vacuum, hydrogen and protective atmosphere), extrusion, rolling, drawing.
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D 2.3 Pilot Station for Carbonic Materials

<p>Group Leader: Eng. Phys. Iulian IORDACHE E-mail: iordache@icpe-ca.ro Phone: (+40-21)346.72.31/145 Fax: (+40-21)346.82.99</p>	<p style="text-align: center;">FIELDS OF ACTIVITY</p> <ul style="list-style-type: none"> ✎ Functional characterization: density of current (A/cm²), 2Uc voltage drop (mV), friction coefficient (μ), average speed of wear (mm/103h); ✎ Physical characterization of material; ✎ Services for others.
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D 2.4 Pilot Station for Magnetic Materials

<p>Group Leader: Eng. Nicolae STANCU E-mail: nicustancu@icpe-ca.ro Phone: (+40-21)346.72.31/151 Fax: (+40-21)346.82.99</p>	<p style="text-align: center;">FIELDS OF ACTIVITY</p> <ul style="list-style-type: none"> ✎ Magnetic materials with high performance used in electrical machine building; ✎ Research regarding the obtaining of permanent magnets with rare earth and magnetic field concentrators able to allow a maximum transfer of magnetic flux; ✎ Obtaining of magnetic materials and permanent magnets; ✎ Services for others.
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D 2.5 Pilot Station for Ceramic Materials

<p>Group Leader: Eng. Georgeta VELCIU E-mail: gvelciu@icpe-ca.ro Phone: (+40-21)346.72.31/120 Fax: (+40-21)346.82.99</p>	<p style="text-align: center;">FIELDS OF ACTIVITY</p> <ul style="list-style-type: none"> ✎ Consulting in the field of ceramic materials and technologies; ✎ Characterization of materials; ✎ Small-scale manufacturing of ceramic products; ✎ Vacuum thermal treatment (max. 2700oC), protective atmosphere, under pressure.
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D 2.6 Laboratory for Processing Microelectromechanical Systems

<p>Group Leader: Eng. Cristinel ILIE E-mail: cristinel_ilie@icpe-ca.ro Phone: (+40-21)346.72.31 / 125 Fax: (+40-21)346.82.99</p>	<p style="text-align: center;">FIELDS OF ACTIVITY</p> <ul style="list-style-type: none"> ✎ Design of tools, devices and verifiers, models and prototypes for research projects; ✎ Processing microelectromechanical systems: processing by electro-erosion; micromechanical processing; manufacturing coils on automated machines.
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D 2.7 Centre for Technological Transfer CTT ICPE-CA

<p>Group Leader: Eng. Ion IVAN E-mail: ivan@icpe-ca.ro Phone: (+40-21)346.72.31 / 132 Fax: (+40-21)346.82.99</p>	<p style="text-align: center;">FIELDS OF ACTIVITY</p> <ul style="list-style-type: none"> ✎ Technological transfer of products and technologies elaborated by INCDIE ICPE-CA; ✎ Development of interactive exchange for the practical application through technological transfer of patents, products, equipment and services elaborated by institute.
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D 4.1 Laboratory for Characterization And Testing Of Electrotechnical Materials And Products

<p>Group Leader: Eng. Sorina Adriana MITREA E-mail: mitrea@icpe-ca.ro Phone: (+40-21)346.72.31/151, 138, 107 Fax: (+40-21)346.82.99</p>	<p style="text-align: center;">FIELDS OF ACTIVITY</p> <ul style="list-style-type: none"> ✎ Determining the physical and mechanical characterizations: hardness, micro-hardness, density, Fisher average diameter, tensile strength, compressive strength, bending strength; ✎ Determining the electrical characteristics; ✎ Determining the magnetic characteristics: magnetic induction, coercitive magnetic fields, intrinsec magnetic field, specific magnetic energy, permeability, power loss; ✎ Structural analysis: X-ray diffraction, optical microscopy, scanning microscopy; ✎ Microbiological analysis.
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D 4.2 Laboratory for Bioelectromagnetic Compatibility

Group Leader: Dr. Eng.
Jana PINTEA
E-mail: jpintea@icpe-ca.ro
Phone: (+40-21)346.72.31 / 128
Fax: (+40-21)346.82.99

FIELDS OF ACTIVITY

- ✎ Influence of electromagnetic fields radiated by some electrical devices (mobile phones, microwave ovens, etc) on living organisms,
- ✎ Determining the level of attenuation of electromagnetic screens;
- ✎ Determining the electromagnetic field of electrical devices;
- ✎ Spectral analysis by reflectance and transmission spectroscopy in the THz frequency;
- ✎ Impedance spectral analysis for ceramic, magnetic, semiconductor materials, passive and semiconductor components in the range 40 Hz – 110 MHz;
- ✎ infrared spectral analysis of image for electrical circuits, fire prevention, electrical connections, buildings, etc.

D 4.3 Laboratory for Thermal Analysis

Group Leader: Dr. Eng.
Petru BUDRUGEAC
E-mail: bp@icpe-ca.ro
Phone: (+40-21)346.72.31/118
Fax: (+40-21)346.82.99

FIELDS OF ACTIVITY

- ✎ Thermogravimetry (TG);
- ✎ Derivative thermogravimetry (DTG);
- ✎ Differential thermal analysis (DTA);
- ✎ Differential scanning calorimetry (DSC);
- ✎ Dilatometry (DIL);
- ✎ Dynamic mechanical analysis (DMA).

D 4.4 Laboratory for Bioelectromagnetic Compatibility – Anechoic Chamber –

Group Leader: Dr. Phys.
Eros Alexandru PATROI
E-mail: alessandroeros@icpe-ca.ro
Phone: (+40-21)346.72.31/127
Fax: (+40-21)346.82.99

FIELDS OF ACTIVITY

- ✎ Immunity testing for electrical and electronic devices;
- ✎ Development of electromagnetic absorbing materials;
- ✎ Development of micro and nano materials – electromagnetic materials.

D 4.5 Laboratory for Mems And Nems Measurements

Group Leader: Eng.
George Claudiu ZARNESCU
E-mail: zgc@icpe-ca.ro
Phone: (+40-21)346.72.31 / 204
Fax: (+40-21)346.82.99

FIELDS OF ACTIVITY

- ✎ Measurements of micro and nanodisplacements;
- ✎ Measurements of dynamic parameters for micro and nanoactuators;
- ✎ Measurements of electromechanical resonance;
- ✎ Measurements of surfaces nano roughness (profile diagrams).

D 4.6 Laboratory for Cryoelectrotechnics

Group Leader: Dr. Eng.
Ion DOBRIN
E-mail: idobrin@icpe-ca.ro
Phone: (+40-21)346.72.31 / 148,
132
Fax: (+40-21)346.82.99

FIELDS OF ACTIVITY

- ✎ Solid materials at low temperatures and intense magnetic field physical properties measurements;
- ✎ cryogenics and its applications in electrical engineering;
- ✎ Superconductivity and its applications in electrical engineering;
- ✎ Superconducting materials for applications in electrical engineering;
- ✎ Characterization and testing of superconducting materials LTS and HTS (critical currents, critical temperature, etc.);
- ✎ Superconducting coils realization and testing;
- ✎ Services for others;
- ✎ Renewable energy.



1

Identification data of INCD

1.1 Company name _____	26
1.2 Founding document _____	26
1.3 Registered number in Register of potential contractors _____	26
1.4 General Manager _____	26
1.5 Address _____	26
1.6 Phone, fax, web site, e-mail _____	26

1. Identification data of INCD

1.1. Company name	National Institute for R&D in Electrical Engineering ICPE-CA Bucharest
1.2. Founding document	Government Decision 1282 / 2004
1.3. Registered number in Register of potential contractors	1155
1.4. General Manager	Prof. Dr. Wilhelm KAPPEL
1.5. Address	313 Splaiul Unirii, District 3, Bucharest – 030138
1.6. Phone, fax, web site, e-mail	phone: 021-346.72.31, 021-346.72.35, 021-346.82.97 fax: 021-346.82.99 http://www.icpe-ca.ro e-mail: office@icpe-ca.ro



2

Brief introduction of INCDIE ICPE-CA

2.1. History	30
2.2. Organizational chart of INCDIE ICPE-CA	31
2.3. Specialized field of INCDIE ICPE-CA	32
2.4. Research area	32

2. Brief introduction of INCDIE ICPE-CA

2.1. History

Based on General Shareholders Association (AGA) decisions of ICPE SA of 03.07.2000 and 16.09.2000 has ordered the division of SC ICPE SA and founding of a new company ICPE-Advanced Researches. This division was implemented in April 2001 when has founded SC ICPE-Advanced Researches SA.

Once entered in the Register of Commerce, has acted as a Joint Stock Company until August 2004. The initial share capital subscribed of 3,811,075.00 lei – contribution in kind – was entirely owned by Romanian state as sole shareholder and was fully paid from the date of the company. Since August 2004, by Government Decision 1282, company ICPE-CA was reorganized as National Institute of Research and Development in Electrical Engineering ICPE-CA Bucharest. Its patrimony, consisting of private state property which passed in institute management and own property, is on December 31 2009 of 36,996,228 lei.

Vision INCDIE ICPE-CA

INCDIE ICPE-CA will become the promoter in electrical engineering progress based on knowledge.

Mission INCDIE ICPE-CA

INCDIE ICPE-CA promotes and takes applied research in national and international background in electrical engineering (materials, electrotechnology, new energy sources, dynamic balancing and vibration, electromagnetic compatibility, etc.) benefit to companies, private and public, for the benefit of the whole society.

Developing technological innovation for customers, ICPE-CA increases their competitiveness both in Romania and in Europe. Research activities carried promotes economic development of society and lead to social welfare, in compatibility with environment.

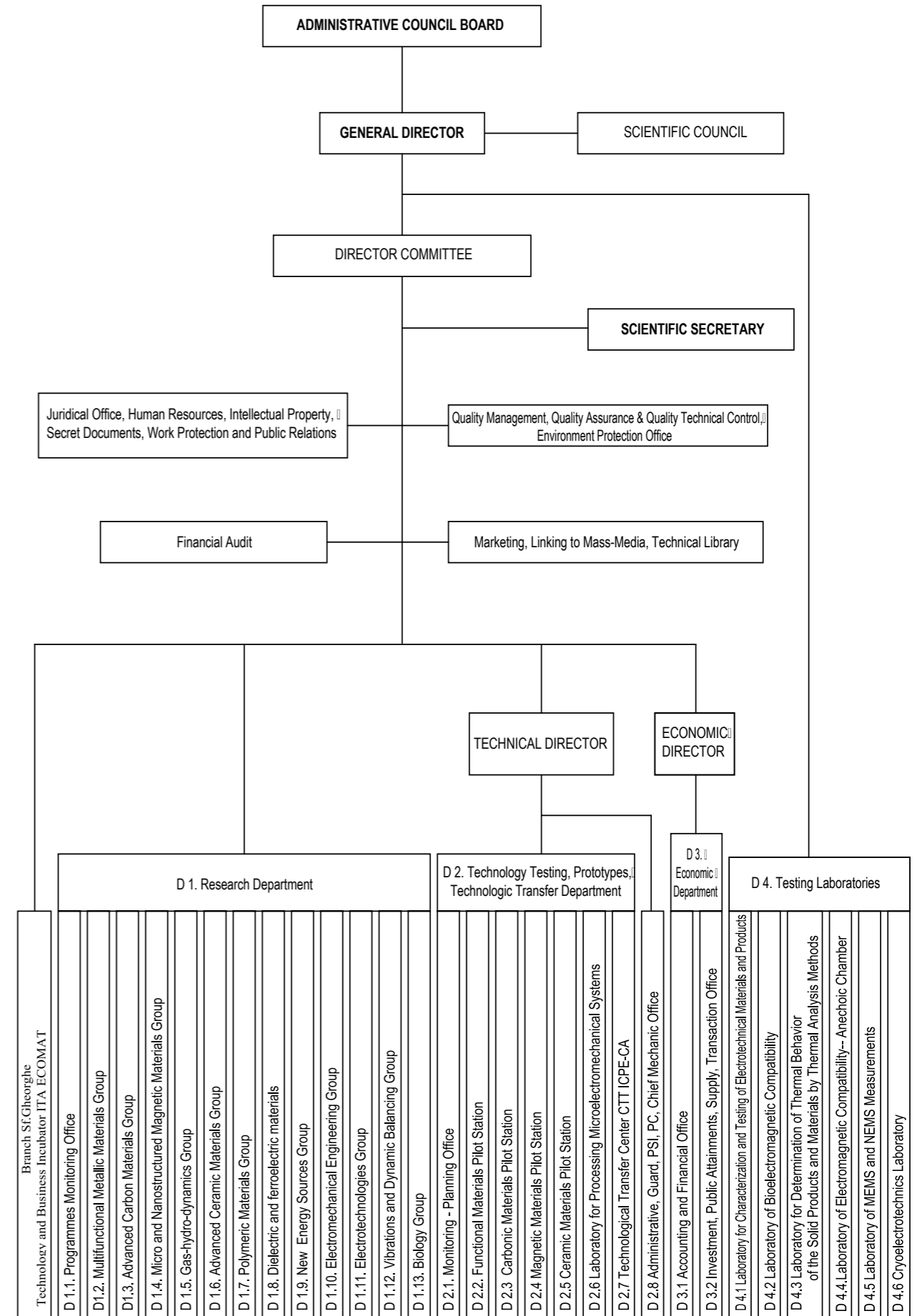
For institute employees, ICPE-CA offers personal development professional qualification which will enable them to occupy positions of responsibility at the level of the institute, in industry and in other scientific fields.

The mission is defined, achievable (due ICPE-CA skills and creativity of employees), informative, accurate, reflect reality (values and culture) of ICPE-CA, and is oriented towards beneficiaries.

In strategy developed by the institute during the period 2006 - 2013, research activities should contribute to:

- reach the level of compatibility and competitiveness necessary for integration into the European research area;
- participation in RDT Framework Programme 7 of the European Union for the period 2007-2013;
- developing social, economic, competitive and dynamic, oriented high-tech fields, able to meet the strategic long-term development in the globalized economy.

2.2. Organizational chart of INCDIE ICPE-CA



2.3. Specialized field of INCDIE ICPE-CA

- a. according to UNESCO classification:
 3306 – Electrical Engineering and Technology
 3312 – Technology of materials
- b. according to CAEN classification:
 Main activity as coding:
 7219 – Research – development in other natural sciences and engineering
 Secondary activities as coding:
 7211 - Research – development in biotechnology
 7220 – Research – development in social sciences and humanities

- technical support, supplying of scientific and technological services for companies or any interested beneficiary, by testing laboratories:

- Laboratory for Characterization and Testing of Electrotechnical Materials and Products;
- Laboratory for Bioelectromagnetic Compatibility;
- Laboratory for Thermal Analysis;
- Laboratory for MEMS and NEMS Measurements.

2.4. Research area

- a. main research area:
 Research – development in other natural sciences and engineering

The institute is involved in 3 main research areas:

- advanced materials: functional / multifunctional, crystalline and nanostructured materials and composites;
- new sources of energy (wind energy, solar energy, fuel cells, hydrogen storage): conversion, economy and recovery;
- microelectromechanical technologies and systems.

- b. secondary research areas:
 Research – development in biotechnology
 Research – development in social sciences and humanities

Description of activity:

- a) basic and applied research in the field of electrical engineering;
- b) technical support and consultancy in the field of electrical engineering;
- c) information, documentation and staff training in the field of electrical engineering.

- c. services / technologic transfer

- technologic transfer of research results in the field of electrical engineering for economy, through the Pilot Stations (Pilot Stations for Functional Material; Pilot Stations for Carbonic Materials; Pilot Stations for Magnetic Materials; Pilot Stations for Ceramic Materials) and the Center for Technology Transfer CTT ICPE-CA;



3

Management structure of INCDIE ICPE-CA

3.1. Administrative Council Board	36
3.2. Scientific Council	36
3.3. Managing Committee	37

3. Management structure of INCDIE ICPE-CA

3.1. Administrative Council Board

Administrative Council Board of INCDIE ICPE-CA

Kappel Wilhelm	President	General Director of INCDIE ICPE-CA
Tanasescu Florin Teodor	Vice-president	Romanian Electrotechnical Committee
Gavrila Horia	Member	President of Scientific Council
Bala Gheorghe	Member	Ministry of Education, Research, Youth and Sport
Tudor Tatiana	Member	Ministry of Public Finance
Cioponea Gheorghe	Member	Ministry of Labor, Family and Equal Opportunities
Opris Marcel	Member	Special Telecommunication Service

3.2. Scientific Council

SCIENTIFIC COUNCIL OF INCDIE ICPE-CA

Horia Gavrila	Prof. Dr. Eng.	INCDIE ICPE-CA
Iosif Lingvay	Dr. Eng., Scientific Secretary	INCDIE ICPE-CA
Florin Filip	Acad. Prof. Dr. Eng.	Vice-president of Romanian Academy
Emil Burzo	Acad. Prof. Dr. Phys.	Member of Romanian Academy
Alexandru Morega	Prof. Dr. Eng.	UPB – Faculty of Electrical Engineering
Petru Notingher	Prof. Dr. Eng.	UPB – Faculty of Electrical Engineering
Teodor Visan	Prof. Dr. Eng.	UPB – Faculty of Chemistry

Nicolae Vasile	Prof. Dr. Eng.	President of Academy of Technical Sciences
Silviu Jipa	Prof. Dr.	INCDIE ICPE-CA
Nicolae Olariu	Prof. Dr. Eng.	Valahia University - Targoviste
Georgeta Alecu	Dr. Eng.	INCDIE ICPE-CA
Constantin Bala	Prof. Dr. Eng.	INCDIE ICPE-CA
Petru Budrugeac	Dr. Chem.	INCDIE ICPE-CA
Mircea Ignat	Dr. Eng.	INCDIE ICPE-CA
Cristinel Ilie	Eng.	INCDIE ICPE-CA
Mariana Lucaci	Dr. Eng.	INCDIE ICPE-CA
Mihai Mihaiescu	Dr. Eng.	INCDIE ICPE-CA
Jenica Neamtu	Dr. Phys.	INCDIE ICPE-CA
Gheorghe Samoilescu	Prof. Dr. Eng.	INCDIE ICPE-CA
Wilhelm Kappel	Prof. Dr., General Director	INCDIE ICPE-CA
Elena Enescu	Dr. Eng., Technical Director	INCDIE ICPE-CA

3.2.1 ETHICS COMMISSION

Prof. dr. Ing. Florin Tanasescu

Dr. Ing. Mircea Ignat

Eng. Iuliu Popovici

Dr. Eng. Mirela Codescu

Law Adviser Mariana Lungu

3.3. Directory Board

DIRECTORY BOARD OF INCDIE ICPE-CA

Kappel Wilhelm	General Director
Enescu Elena	Technical Director
STAN Livia	Economic Director
LINGVAY Iosif	Scientific Secretary



4

Synthetic view of economical and financial report of INCDIE ICPE-CA:

4.1 Venituri realizate prin contracte de cercetare-dezvoltare naționale finanțate de la bugetul de stat	40
4.2 Venituri realizate prin contracte de cercetare-dezvoltare internaționale finanțate din fonduri publice	47
4.3 Venituri realizate din fonduri structurale	47
4.4 Venituri realizate prin contracte de cercetare-dezvoltare finanțate din fonduri private	48
4.5 Venituri realizate din activitati economice (servicii, microproductie)	48

4. Situația economico-financiară a INCDIE ICPE-CA

No.	Specifications	Value ROL
4.1	Income obtained by national R&D contracts financed from national budget	19,500,253
4.2	Income obtained by international R&D contracts financed from national budget	908,998
4.3	Income obtained by structural funds	1,283,963
4.4	Income obtained by R&D contracts from private funds	333,583
4.5	Income obtained by economical activities (services, small-scale manufacturing, exploitation of intellectual property rights)	258,241
	TOTAL income	22,285,038

4.1 Income obtained by national R&D contracts financed from national budget

No.	Contract No.	Contract Name	Value of contract stage - lei -
	PNCDI		
1	22-118/2008/4250	Superconducting electric motor	176710
2	21-023/2007/7021	Implementation of clean energy technologies by developing a heat engine based on hydrogen absorbing metal alloys using solar energy or waste energy	74270
3	32-168/2008/7061	Breathing superhydrophobic nanostructures	20000
4	71-116/2007/4244	Micro/nano smart functional materials	211229

No.	Contract No.	Contract Name	Value of contract stage - lei -
5	72/2007/7016	Obtaining by thixotropy and direct injection molded of complex parts for electronic and communication equipment	56052
6	146/2008/7060	Innovative technologies to obtain electrical contacts by using equal channel angular extrusion	40000
7	58/2007/7025	Sealing system based on magnetic nanofluids for gas valves	38500
8	11-048/2007/7026	Nanoelectric devices based on oxidic materials	68079
9	71-038/2007/7027	Innovative technologies for improving the properties of metallic materials surface, using in automobile production	171154
10	1171/2008/7066	Development of radiant heating systems from advanced composite materials, in order to increase the energy efficiency of buildings	52500
11	12-095/2008/7074	BioFET transistors for custom bioanalysis and cellular functional estimates	13900
12	222/2007/4233	New nanostructured materials for hydrogen storage	197037
13	21-034/2007/4234	5 kW PEM fuel cell based co-generation system	263833
14	71-001/2007/4240	Composite structures for aerospace and transportation industry	346349
15	22-132/2008/4255	Photovoltaic cells based on thin layers obtained by alternative technologies to produce clean energy	176710
16	81-050/2007/7015	Composite textile structures for protection systems against electromagnetic radiations	205000
17	71-57/2007/7020	Induced magnetization materials controlled by external parameters	70755
18	12-094/2008/7053	Microfluidic biochip for rheological characterization of Newtonian biological fluids with applications in diagnosis and treatment	20000
19	12-093/2008/7056	Nanostructured systems with applications in high frequency devices	12150
20	72-186/2008/7059	Magnetic nanocomposite materials reinforced by exchange	8515
21	21-012/2007/4228	Self-protector aerial electric conductor at the deposits of frost and ice for high voltage lines	258081
22	81-059/2007/4239	Securing element with ferromagnetic microwires and field sensor for application in electronic detection validation	448921
23	71-127/2007/4243	Intelligent processing of spin-valve nano-devices with giant magnetoresistance for applications in spintronics	318084
24	12-134/2007/4256	Oxidic semiconducting nano-devices for applications in nano-electronics and nano-medicine	152567

No.	Contract No.	Contract Name	Value of contract stage - lei -
25	12-086/2007/4258	Ferromagnetic components for Microelectromechanical systems	97567
26	72-165/2007/4259	Oxidic semiconductor nanostructures with controlled properties by doping for applications in optoelectronics, spintronics and piezotronics	168801
27	232/2007/4232	Axial symmetric flow induced	97493
28	31-041/2007/4242	New ecological technologies for energy recovery of biodegradable wastes as fuel gas, with applications to small treatment plants	278902
29	10-010/2007/7003	Millimeter wave devices on metamaterials microprocessed by laser ablation	23986
30	71-030/2007/7014	Advanced ceramic components for intermediate temperature fuel cells	47428
31	41-059/2007/7023	Bio / non-bio interactions involved in the design of hard tissues	50000
32	61-012/2007/7024	Developing of new treatment methods of bone defects by using of mesenchimale stem cells and biocompatible composite materials	31033
33	22-127/2008/7058	Synthesis of nanostructured semiconductors based on doped Bi ₂ Te ₃ SiZn ₄ Sb ₃ with applications in clean energy	20891
34	72-212/2008/7067	Advanced microsystems based on microdevices obtained by MEMS techniques	38331
35	72-169/2008/7068	Independent modular system for road monitoring of atmospheric conditions (temperature, barometric pressure, fog, ice, snow, wind, rainfall)	8000
36	71-143/2007/4229	Incandescent ceramic plugs for Diesel engines	465506
37	22-083/2008/4254	Clean energy source planar module of type IT-SOFC	176710
38	51-014/2007/7019	Dielectric non-destructive, non-invasive, comparative methodology for rapid detection of ingredients with health risk from food	37380
39	71-010/2007/7022	Biodegradable composites with applications in improvement of car interior	161098
40	72-172/2008/7054	High precision and sensitivity techniques applied in biomonitoring networks of environment pollution with polluting factors from development areas of South, South-East and Central of Romania	8440
41	1594/2007/7057	Heat-resistant polymeric materials with long life for sealing gaskets exposed to irradiation	27000

No.	Contract No.	Contract Name	Value of contract stage - lei -
42	71-079/2007/4231	Manufacture of multifunctional ecological polymeric materials, stabilized with polyphenolic antioxidants from plants	272343
43	21-001/2007/4236	Hydro power plant operated by waves	481846
44	21-006/2007/4238	Innovative micropower plants based on renewable resources (wind and hydraulic), with expanding the use of working fluid beyond the usual limits	243736
45	22-129/2008/4252	Non-conventional clean hydro power application, in a place on the river Prut, with submersible aggregate	191790
46	21-059/2007/7017	Research on development of ecological technologies based on magnetostrictiv induced vibrations in order to reduce the energy consumption which has the effect the global warming	24177
47	22-084/2008/7070	Electricity production system from unused energy of natural gas	28376
48	82-103/2008/7071	Innovative systems and devices to secure buildings when strong earthquakes	29703
49	21-043/2007/4230	Functional compatibility of special electrical engineering equipment, with magnetic ferrofluid (isolated passages, measurement transformers, curling for physical microparticles, voltage dividers at industrial frequency)	292790
50	21-022/2007/4237	Electrical engineering components for average wind power plants (200-800kW)	434748
51	21-045/2007/4241	Electric power generators with permanent magnets having the power between 10 and 200 kW	231687
52	22-122/2008/4251	Intelligent prediction and diagnosis system to prevent damage of power cables	176710
53	72-166/2008/4253	Development of environment friendly natural inhibitors based on plant extract to control corrosion and crust deposition (ICC) from thermal plants	168801
54	71-088/2007/7012	Integrated system for determining the laser weldability of polymeric materials, the monitoring and control of welding process in real time	63366
55	71-052/2007/7013	Computerized measurement and analysis system of running profiles to increase the guiding safety and rolling operation quality, as well as synthesis of new profiles on railway vehicles	155536
56	71-60/2007/7004	Innovative magnetic materials with high applied potential	69177
57	71-015/2007/7007	Soft magnetic nanocrystalline materials and powders, based on Fe and Ni, obtained by mechanical synthesis. Preparation, properties, obtaining of compact nano-crystalline for applications	161841

No.	Contract No.	Contract Name	Value of contract stage - lei -
58	87/2007/7028	Stand for running, characterization and testing of electrical machines up to 1500kW, used in railway traction	153105
58	11-054/2007/7002	Computer system for real time analysis of risk factors for environment and public health	79869
60	110/2007/7011	Improvement of fuses by optimizing the thermal and electrical regimes in their exploitation	8208
61	31-013/2007/7018	Study of semi-closed ecosystems (alpine and volcanoes lakes) in order to establish the reference level to asses the impact of anthropogenic factor: alpine lakes from Fagaras Mountains and Lake St.Anna	45286
62	12-105/2008/7065	New non-linear laser materials for efficient generation of coherent photonic emission in the field of blue-violet	36900
63	31-066/2007/7005	Environmentally friendly ionic liquids with applications in electrochemical surface treatment for high performance	32606
64	71-146/2007/7006	Advanced biomaterials based on nanostructured bioactive protein structures doped with metallic nanoparticles	30476
65	91-012/2007/7008	Sustainable technologies and materials for conservation and restoration of heritage objects of leather to ensure the viability of cultural heritage in the Community	18690
66	71-074/2007/7009	Competence center for materials characterization by nuclear technologies and new analytical tools at European level for IMS applications	152554
67	71-147/2007/7029	Development of new biomaterials with collagen supermolecular structures doped, with piezoelectric properties of liquid, electric and magnetic crystals, for use in bioengineering	149730
68	91-003/2007/7031	Arta Sacra authentication to ensure the Community viability	144584
69	92-113/2008/7055	Integrated methods in conservation / restoration of UNESCO patrimony to increase the Community viability	63340
70	32-146/2008/7062	Strategy of obtaining of some ceramic pigments friendly environment by non-polluting methods	32500
71	279/2008/7063	Coating technology based on nanostructured dispersed photocatalytic systems, with self-cleaning and antimicrobial role for applications in the field of buildings	52500
72	42-128/2008/7073	Cell response as a means in translational science. "Drug-design" by anti-tumor cellular mechanism induced by complex physiological of transitional divalent metals	5000
		TOTAL PNCDI	9.170.937

No.	Contract No.	Contract Name	Value of contract stage - lei -
	NUCLEUS PROGRAMME		
73	09350101/2009/5101	Microelectromechanical components and systems (MEMS) made by specific technologies with applications in medicine, microfluidic and in obtain of micromotors and microactuators PN-09-35-01-01	2160000
74	09350102/2009/5102	Obtaining of spherical dipole magnets, superconducting coils, magnets, electromagnets and sources for FAIR particle accelerators PN 09-35-01-02	1800000
75	09350103/2009/5103	Composite materials with performing mechanical properties PN 09-35-01-03	400000
76	09350104/2009/5104	Allotropic tin alloy, stable at low temperatures, used for coating PN 09-35-01-04	450000
77	09350105/2009/5105	Small scale cooling device based on materials with magnetocaloric effect PN 09-35-01-05	450000
78	09350201/2009/5201	Increase the efficiency of equipment and technological process for energetic conversion from renewable resources PN 09-35-02-01	700000
79	09350202/2009/5202	Devices based on magnetic materials used for energy harvesting PN 09-35-02-02	650000
80	09350203/2009/5203	Insulating coatings with ceramic "microsphere" - TMC PN 09-35-02-03	300000
81	09350204/2009/5204	Ceramic sealing elements for magnetic coupling used for zero loss pumps PN 09-35-02-04	200000
82	09350205/2009/5205	Vibration compensation by active suspensions PN 09-35-02-05	750000
83	09350301/2009/5301	Developing of new materials and devices for controlled release of drugs with applications in biomedical engineering PN 09-35-03-01	200000
84	09350302/2009/5302	Seawater desalination. Hybrid system of capacitive deionization and electrochemical purification for water, coupled with desalination system by Hall effect PN 09-35-03-02	450000
85	09350303/2009/5303	Device for CO ₂ detection and retention PN 09-35-03-03	450000

No.	Contract No.	Contract Name	Value of contract stage - lei -
86	09050304/2009/5304	Fytocompounds with thermal-photo and radio protective effect in inhibiting lipid peroxidation with applications in food and carcinogenesis. Expand at dielectric liquids PN 09-35-03-04	409762
Total Nucleus Programme			9369762
BILATERAL PROJECTS			
87	10EU/2009/4261	Study the aging effects radioinduced in electroinsulating materials of cables Module III CERN	336000
88	333/2009/4265	Preparatory project – Miniature intelligent sensors systems for treating the Pre-SensyWa water	2923
Total Bilateral Projects			338.923
CAPACITATIES PROGRAMME			
89	20/2007/4235	Improving the research capacities through consolidation, expansion and modernization of infrastructure for Electromagnetic Compatibility Laboratory	456000
90	58/2007/4245	Laboratory for processing of mechanical microstructures by LIGA technology	85500
Total Capacitates Programme			541,500
SCIENTIFIC EVENTS			
91	M /2009/4263	X-th Conference of Biomedical Engineering INGIMED, Nov. 12-13, 2009, Bucharest	6000
92	M /2009/4264	International workshop “Innovation and Evolution by R&D – SMEs Strategic Partnership”, Sept. 10-12, 2009, Bucharest	6000
93	M /2009/4266	6th International Workshop of Electromagnetic Compatibility CEM 2009, Nov. 12-14, 2009, Constanta	6000
Total scientific events			18,000
Cooperation with IUCN – Dubna, Russian Federation			
94	14.03-41036-2001/2010		2583
95	17.04-4-1069-2009/2011		20664
96	19.04-4-1069-2009/2011		6601
97	21.04-4-1069-2009/2011		6601
98	25.04-4-1075-2009/2011		19516
99	1.02-2-0941-1991/2009		5166
Total cooperation with IUCN - Dubna			61,131
TOTAL BUDGET			19,500,253

4.2 Income obtained by international R&D contracts financed from national budget

No.	Contract no. / Beneficiary	Contract name	Value of contract stage (ROL)	Value of contract stage (Euro)
1.	1/2007 - Istituto di Ricerca Metro, Torino, Italy	Magic cylinder	44394	10500
2.	10/2009 - Schul Hydraulik GmbH	Electric generator 1.5kW	15351	3590
3.	1/2008 – European Community	contr. 206119 PROCUST (CSA-SA-REGPOT-2007-2-1) Promotion of Competence to Up-grade the RTD Potential in Science and Technology	723969	171658
4.	11/2009 FP7 REGPOT-2008-1 - Grant Agreement 229906	Developing RTD Potential of INCIDIE ICPE-CA in the Field of Hydrogen and Fuel Cell Technologies (ICPE-HyFC)	66694	16111
5.	9/2008 – Regional Development Agency N-V	EEN 225559 - BISNet Transylvania	24758	6291
6.	1601/2006 - Universita degli Studi di Trento, Torino, Italy	Cooperation to the European project PolyCerNet within contract MRTN-CT-2005 01601	6175	1470
7.	6/2007 – CERN	Studies of Radiation Induced aging Effects in Polymeric Cable Insulators	28357	6500
TOTAL			908,998	216,120

4.3 Income obtained by structural funds

No.	Contract no.	Contract name	Value (ROL)
1	contr.5/2009	PROMIT	1.283.963
TOTAL ctr. PROMIT			1.283.963

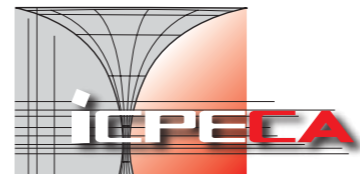
4.4 Income obtained by R&D contracts from private funds

No..	Contract	Beneficiary	Value (ROL)
1	1022/09	Various beneficiaries	1420
2	1023/09	Advanced Technologies	3865
3	1025/09	Various beneficiaries	4500
4	1024/09	IPROEB SA	1190
5	1015/08	CNTE Transelectrica SA	90000
6	1026/09	CNTE Transelectrica SA	100000
7	1027/09	Oradea Transport Local-RA	38153
8	1028/09	INCAS	840
9	1029/09	Various beneficiaries	640
10	1030/09	Various beneficiaries	4281
11	1031/09	Various beneficiaries	17452
12	1032/09	CER	420
13	1033/07	Eurosystems International	42809
14	1021/08	Various beneficiaries	28013
		TOTAL	333,583

4.5 Income obtained by economical activities (services, small-scale manufacturing, exploitation of intellectual property rights)

No	Contract	Beneficiary	Value (ROL)
1.	contr. 2019/2009 - Manufacturing electrical contacts	SC IAME Grup SA Sf.Gheorghe SC Contactoare SA Buzau	80526
2.	contr.2020/2009 - Manufacturing magnets	SC ROMNEOMAG SRL Bucharest SC Fermit Stante si Matrite Ramnicu Valcea SC Electromagnetica SA	62358
3.	contr.2021/2009 - Manufacturing brushes	SC ALSTOM POWER Romania SRL SC Electrotehnica SA SC Emailul SA Medias	43167
4.	contr.2022/2009 - Manufacturing ceramic elements	SC UTTIS Industries SA Bucharest RATB URAC Bucharest SC Uzina Mecanica SADU SA Bumbesti-Jiu, jud.Gorj	42222
5.	contr.2024/2009 - Analysis	SC Crin IMPEX SRL Bucharest	1170
6.	contr.2027/2009	SC Electromagnetica SA Bucharest SC ICPE-ME SA	8918
7.	contr.2030/2009 - Manufacturing generator	SC Mecanica Ceahlau SA	2127

No	Contract	Beneficiary	Value (ROL)
8.	contr.2028/2009 - Manufacturing devices	SC CONDMAG SA Brasov	795
9.	contr.2025/2009 - Manufacturing magnets	SC ROMNEOMAG SRL	8158
10.	contr.2026/2009 - Manufacturing different pieces	Romanian Space Agency	1685
11.	contr.2005/2007	SC Stand Expo SRL Bucharest	640
12.	contr.2023/2009	SC ICPE SA	450
		Sales invoices	6025
		TOTAL	258,241
		TOTAL	22,285,038



5

Structure of R&D human resources

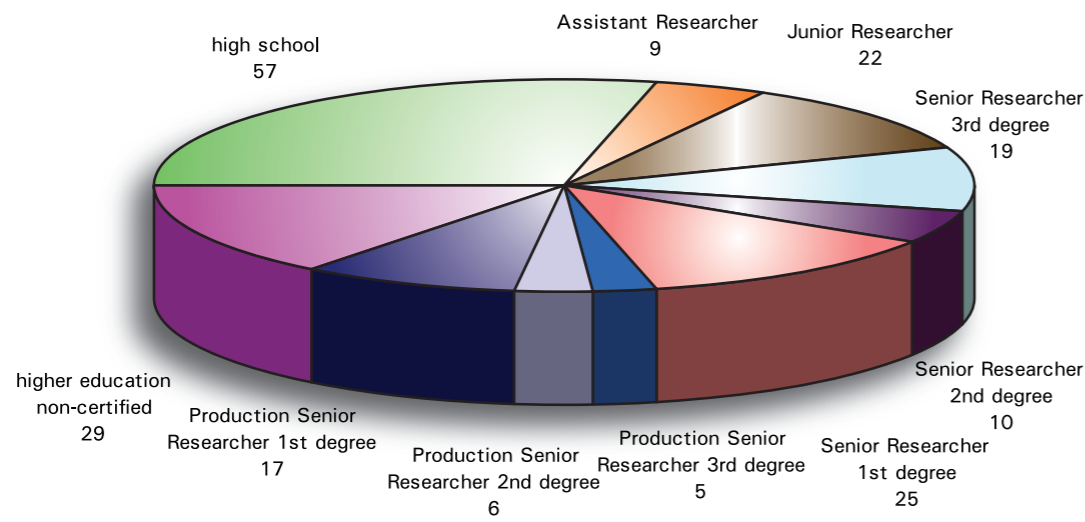
Information on human resources training activities	53
PhD Students	53
PhD thesis developed in INCDIE ICPE-CA	54
Master Graduated 2009	54

5. Structure of R&D human resources

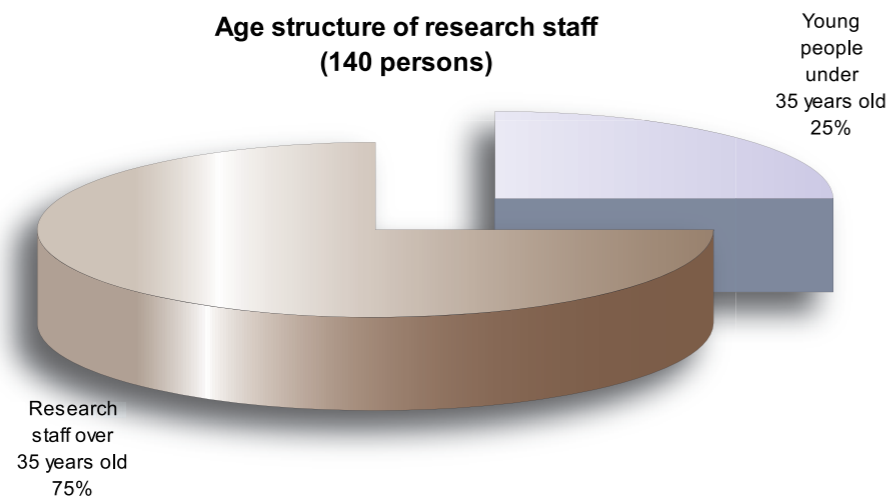
5.1

Total institute staff, of which:	199
Senior Researcher first degree (CS I)	25
Senior Researcher second degree (CS II)	10
Senior Researcher third degree (CS III)	19
Junior Researcher (CS)	22
Assistant Researcher (ASC)	9
Production Senior Researcher first degree (IDT I)	17
Production Senior Researcher second degree (IDT II)	6
Production Senior Researcher third degree (IDT III)	5
- total R&D certified higher education staff	113
- total auxiliary staff, of which:	86
- higher education non-certified staff	29
- high school staff	57

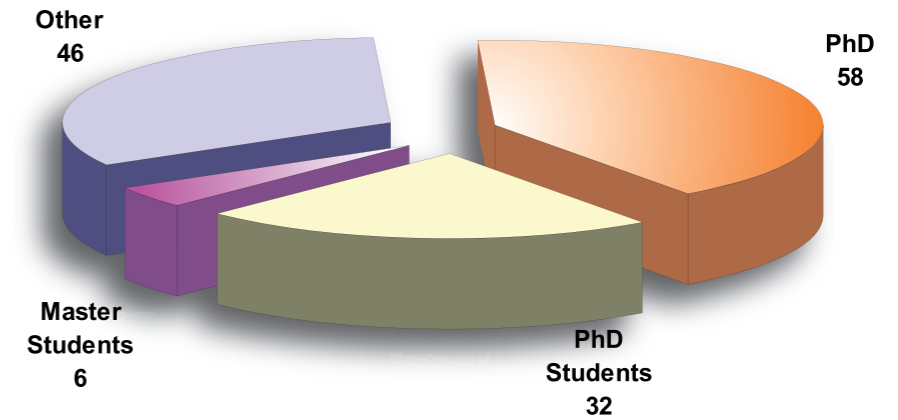
Research & development staff of INCIE ICPE-CA in 2009



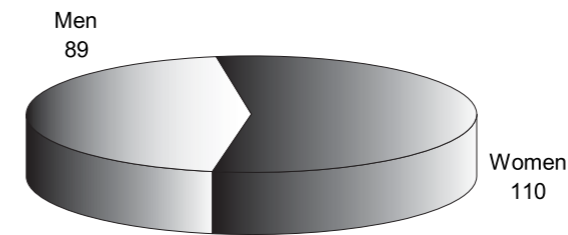
Age structure of research staff (140 persons)



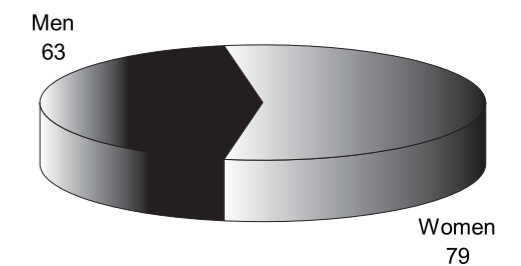
Structure of higher education staff



Gender distribution



Gender distribution of higher education staff



5.2 Information on human resources training activities

5.2.1 PhD Students

No..	First and last name	Title of the PhD thesis	PhD Coordinating Institute
1.	Olguta Gabriela Iosif	Organizational communication	University of Bucharest – Faculty of Journalism and Communication Studies
2.	Beatrice Gabriela Sbarcea	New non-destructive physical – chemical methods for characterization of heritage works	Polytechnic University of Bucharest – Faculty of Chemistry - Physics
3.	Alexandru Laurentiu Catanescu	Magnetostrictiv actuators	Polytechnic University of Bucharest – Faculty of Electrical Engineering
4.	Lucia Nicoleta Leonat	Physical-chemical characterization of materials surface	Polytechnic University of Bucharest – Faculty of Chemistry - Physics
5.	Elena Chitanu (Petrache)	DLC used in industry	Valahia University - Targoviste

5.2.2 Master Students

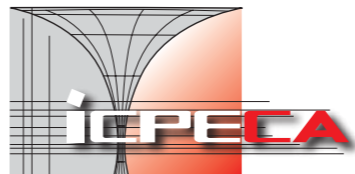
No.	First and last name	University / Faculty
1	Silvia Dobrin	Dimitrie Cantemir University

5.2.3 PHD THESIS DEVELOPED IN INCDIE ICPE-CA

No.	First and last name	Thesis title
1.	Nicolae Sergiu	Relative movement when fluid flow through axial turbomachines rotors
2.	Bara Adela	Carbonic nanocomposites with mesophase pitch matrix and epoxidic resin
3.	Cucos Andrei	Reineke derivatives used in polymetallic supermolecular systems
4.	Branzea Diana	3d-3d' complex hetero-bi-nuclear used as tectons in crystal engineering
5.	Ion Ioana	Study the possibility of obtaining of carbon materials with special uses

5.2.4 Master Graduated 2009

No.	First and last name	University / Faculty	Thesis title
1.	Catanescu Alexandru Laurentiu	Polytechnic University of Bucharest – Faculty of Electrical Engineering	Magnetostrictiv actuators
2.	Iorga Alexandru	Polytechnic University of Bucharest – Faculty of Materials Science	Obtaining of microwires as field sensors for applications in electromagnetic validation detection
3.	Balan Ionut	Bucharest University – Physics Faculty	Characterization of electromagnetic materials and screens in the frequency range 0.8-3.6Hz
4.	Chitanu Elena	Polytechnic University of Bucharest – Faculty of Chemistry - Physics	Stalocianine with special uses; composite materials with polymeric matrix absorbing electromagnetic energy



6

R&D Infrastructure

6. R&D Infrastructure

6.1 R&D Laboratories

No.	Name of laboratory	Field of expertise
1	Quality Management Quality Assurance & Technical Quality Control. Protection environment	Continuous monitoring and improvement system Integrated Quality-Environment Management (Internal Audit, quality management, CTC). Clean technologies, recycling technology, environmental protection. Physical-chemical air and water quality assessment, measurement noise.
2	Multifunctional metallic materials	Sintered metal materials: electrical contacts, soft magnetic materials, heavy alloys, nanopowders and porous metal materials, materials for storage hydrogen, synthesis of intermetallic compounds; lightweight composite materials, laminated composite merged by diffusion, material and antibacterial products for applications in medicine, biology and consumer goods; silver powders colloidal solutions and nanocomposites slurry photocatalytic and biocides, silver nanopowders, doped products with silver nanopowders; materials and products nanostructure for applications in electrical engineering and electronic; powders of silver nanoparticles deposited on tin dioxide.
3	Advanced carbon materials	Advanced carbon materials; new materials for electronic packaging, active carbon; carbon materials for tribological applications, advanced materials for electromagnetic shielding, materials for fuel cell.
4	Magnetic materials micro and nanostructured	Hard magnetic materials based on NdFeB. Magnetic nanocomposite materials based on rare-earth Smart magnetic materials based on Fe-Cu. Magnetoresistive magnetic microstructures, giant magnetoresistance. Core-shell magnetic nanoparticles. Dilute magnetic semiconductors. Magnetic oxide semiconductors Ferrite and Perovskiti. Magnetic microwires. Materials recovered from waste for electromagnetic screen. Thin layers for sensors, magnetic materials micro and nanostructure for medical analysis.
5	Gas-fluid-dynamics	Research in gas –fluid dynamics: -Hydrodynamics of mixing reactor; - Hydro-gaso-dynamics - disperse aeration systems; - Cavitations and cavitation erosion; - 3D Measurement of water flow rate using measuring systems based on Doppler principle. - Measurement, control and pressure and flow visualization on 6-channel.

No.	Name of laboratory	Field of expertise
6	Advanced ceramic materials	Bio ceramic for medical devices and orthopedic surgery; New ceramic materials with applications in clean energy generation – ceramic composite with electrochemical properties for fuel cells; Ceramic composite with advanced thermo-technique properties ; Modern techniques for separating and filtering different media – ceramic with controlled porosity; Unconventional methods to obtain ceramic materials with controlled porosity of organic precursors. Research and development of piezoelectric active components.
7	Polymer processed by irradiation and luminescence phenomena	New unconventional methods, to obtain materials with improved properties; New methods of investigation and analysis of materials, including the concept of appropriate equipment based on the phenomena of luminescence and other physical and chemical effects, in order to optimize system use; characterize the activity of protective antioxidant compounds in the processes of thermal aging, radiochemical and photochemical polymer materials; diagnosis degradation of polymeric materials and evaluation of life in various conditions of application, new methods of waste recycling.
8	New Energy Sources	Research, design, development, innovation and technology transfer for energy conversion installations of renewable resources (wind / electric and hydraulic / electrical). Technical studies, design for wind turbines; Technical studies, design for Small Hydro; Environmentally friendly transport based on electric propulsion; Special electrical machines for power conversion installations.
9	Unconventional Electromechanical Engineering	Microelectromechanic components, electromagnetic actuators, piezoelectric actuators, magnetostrictiv actuators, gas and humidity sensors, electromagnets.
10	Electrotechnology	Electrochemical technology, studies, basic and applied research in the field of corrosion, environmental electromagnetic pollution and fight them underground metallic networks and electrical networks underground, determine state of degradation of concrete-reinforced structures, determination of insulation and corrosion resistance.
11	Vibration and dynamic balance	Monitoring of electrical, mechanical and environmental parameters, dynamic balancing and vibrations.

No.	Name of laboratory	Field of expertise
12	Biology	Mycology, antifungal protection, and biodegradation of materials; Bacteriological analysis of biogas installations, fermentative bacteria determination of organic wastewater, sewage sludge ; Research on microbial activity in the processes of obtaining biogas; Studies of biodegradability lignocelluloses biomass used in biofuel industry; Evaluation of biogas potential of biomass by physical-chemical and microbiological (organic loading, loading microbial, report carbon / nitrogen, nutrients).
13	Bioelectromagnetic compatibility	Characterization of absorbing materials. Rating effects of electromagnetic radiation on living organisms. Characterization of magnetic and dielectric materials; Spectral analysis by transmission and reflection in the field of THz.
14	Intellectual property, Protection of Secret Documents	Develop documentation to protect the original technical solutions from research contracts, developing documentation on providing intellectual property protection through trademarks, exploitation of intellectual property rights through licenses and transfers, ensuring system "Protection of secret documents" according to national norms

6.2 Testing laboratories accredited / non-accredited

No.	Name of laboratory	Field of accreditation	Obs.
1	Laboratory for characterization and testing of electrotechnical materials and products	1. Magnetic testing	RENAR Accreditation (Accreditation Certificate LI 845 / 26.01.2010)
		1.1 Determination of magnetic induction	
		1.2 Determination of coercive magnetic field	
		1.3 Determination of specific magnetic energy	
		1.4 Determination of relative permeability, permanent and reversible	RENAR Accreditation (Accreditation Certificate LI 845 / 26.01.2010)
		2. Physic testing	
		2.1 Determination of density by hydrostatic method	
2.2 Qualitative phase determination			
3. Mechanic testing	3.1 Determination of Vickers hardness	RENAR Accreditation (Accreditation Certificate LI 845 / 26.01.2010)	
2	Laboratory for electromagnetic compatibility	1. Determination of the electromagnetic field emitted by electrical equipments	in the process of accreditation
		2. Determination electromagnetic field attenuation of field screen material	in the process of accreditation
		3. Determination of anechoic rooms efficiency	in the process of accreditation

No.	Name of laboratory	Field of accreditation	Obs.
3	Laboratory for thermal analysis	1. Thermogravimetric analysis (TG) and determining the derivative TG (DTG)	RENAR Accreditation (Accreditation Certificate LI 685 / 21.07.2008)
		2. DTA analysis coupled with TG	
		3. DSC analysis coupled with TG	
		4. DSC analysis	
		5. Dilatometry analysis (DIL)	
4	Laboratory for micro and nanoelectromechanics testing	1. Determination of surface state (roughness and thickness) using WYKO NT 1100 interferometric microscope static / dynamic	in the process of accreditation
		2. Determination of linear and angular micromovements	in the process of accreditation

6.3 Installations and special objectives of national interest

INCIE ICPE-CA aims as mission to promote and conduct applied research in national and international background in electrical engineering for the benefit of the private and public Company. Research activity conducted promotes the economic development of society for social welfare, and environment friendly.

This approach is feasible giving the strengths of INCIE ICPE-CA: appropriate size, quality and staff structure, the connection with economic markets, internal organization, clearly defined competencies of staff, and the relatively new infrastructure.

The year 2009 marked, once again, targeting institute activity to develop infrastructure (equipment, human resources), to achieve specific objectives of national interest.

6.3.1. MICRO-MECHANICAL TECHNOLOGIES AND PROCESSING

The current trend of miniaturization and reducing consumption of raw materials and energy is subject to the development of micromechanics processing facilities.

In this regard, INCIE ICPE-CA develops microtechnologies for microelectromechanical systems processing and control procedures in the field of micro and nanomanufacture.

Processing by electroerosion

Processing by electroerosion with wire – on CNC SMART DEM, made by KNuTh, Germany

Technical characteristics:

Controlled axes : X Y, U, V

Max. Workpiece size: 250x350x200 mm,

Positioning accuracy: 0.02 mm.

Electroerosion processing machine with massive electrode – ZNC-210, made by KNuTh, Germany

Technical characteristics:

NC controlled Z axis feed

Travel x/y: 250/200 mm

Maximum surface electrode: 314 mm²

Max. part height: z 90mm



Precision micromechanics processing

Micromechanic processing on CNC 5 axes – KERN machine – made by **KERN, Germany**

Technical characteristics:
 Working ranges: 250x220x200mm
 Positioning accuracy: ±0.001mm,
 Repetition accuracy: ±0.001mm
 Speed range of the spindle:
 500 - 50 000 rpm, 5 axes
 Minimum diameter for drilling and milling: 0.03 mm



High-precision machining center with 5 axes



Laser Measuring System for tool presetting and control of tool wear and breakage



Touch probe system for measuring of workpiece



Optical measuring microscope



High precision CNC Machining Centre - 3 axes

Micromechanic processing on CNC 3 axes – TMV 400 machine – made by **TOPPER, Taiwan**

Technical characteristics:
 Working ranges: 400x250x250mm,
 Positioning accuracy: 0.01mm,
 Repetition accuracy: 0.03mm
 Main spindle speed: max. 12 000 rpm, 3 axes
 Maximum diameter of tool: 80 mm.

Microprocessing with laser

Excimer laser micromachining center – made by **Coherent, SUA**

Wavelength: 248nm
 Maxim power: 25W
 Positioning accuracy: 0.005mm



Examples of samples made by Excimer laser micromachining using masks

Mask 1: D- 641 mm;

L_{channel} - 0.36 mm

Piece 1 D- 204 mm;

L_{channel} - 0.07 mm



Mask 2: D- 2.65 mm;

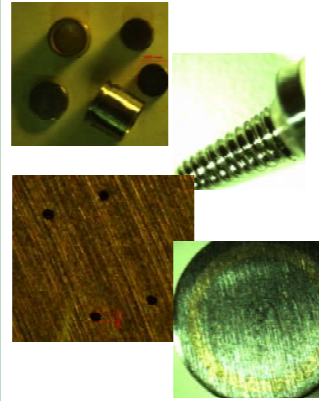
L_{channel} - 0.4 mm

Piece 2 D- 0.65 mm;

L_{channel} - 0.04 mm



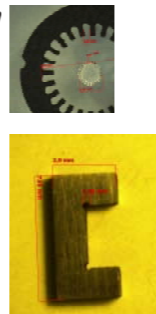
Microparts mechanical processing samples processing by electroerosion



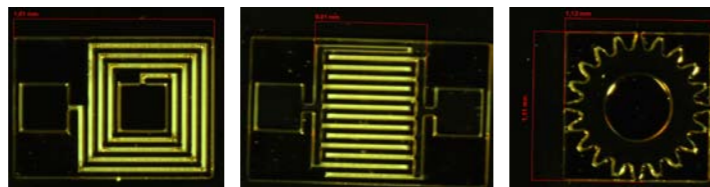
Examples of samples made by electroerosion

Mask isthmus size – 0.51 mm

Piece isthmus size 3 mm;
 l – 3.9 mm;
 D- 0.46mm;
 R- 0.5mm



Microparts processed by laser lithography



Planar coil L = 1.61 mm

Comb Structure L = 0.91 mm

Gear d = 1.12 mm

Precision coils on automatic machines

Toroidal winding machine – made by **JOVIL, SUA**

Technical characteristics:
 Wire size 0.05 ÷ 1.2mm
 Torus inner diameter: min. 8mm,
 Torus external diameter: max. 63mm
 Torus height: maxim 50.8mm.



Cylindrical winding machine – made by **NITTOKU, Japan**

Technical characteristics:
 Wire size: 0.01 ÷ 1.2mm
 Longitudinal range work: 100mm,
 Coil external diameter: maxim 140mm,
 Adjustable winding up in the range 0 ÷ 9.999mm,
 Coil cross section: circle, square, rectangle, ellipse etc.



High-precision micromechanical parts using LIGA technology



DWL 66FS Maskless Laser Lithography System, made by Heidelberg Instruments, Germany

Wave length 375 nm
 Power 18 mW
 Minimum structure size: 1µm
 Current using: mask making, MEMS, sensors, micro fluidics, etc.

**STP 2020 Stripping Tool for SU-8, made by R3T, Germany
Remote Microwave Plasma Etcher**

Microwave power: 2000 Watt
Process gases used: O₂, CF₄, N₂
Temperature control system
Vacuum chamber included
Working area: 460x460mm
Adixen vacuum pump
Process monitoring software



Spin-coating System

rotational speed: adjustable 0-10.000 rot/min
size: 4x4 inch
2 spin-coaters
Vacuum clamping system
Pipetting system
Automatic power plate system



Microwires Drawing Machine

Microwires with metallic core (Cu, Ge, Ag, Au, alloys Fe- Si-B); insulated glass (core 5-10 μm, insulation 10 μm) L = 1-2 km.



Magnetron Sputtering Deposition System

Components: 3 magnetrons (2 for metals, each using one power source, 1 for ceramic materials); vacuum pump
Technical characteristics
Maximum voltage: 900 V
Maximum pressure: 3 at
Primary vacuum: 10⁻³ bar
Higher vacuum: 10⁻⁴ bar
Ar atmosphere
Thickness deposited: 0.1 – 1 μm.



Welding system with electron beam

- Hardening with electron beam on preselected microarea:
 - For steel OLC45:
 - Hardness: HV = 900-1100 40 gf/30, to untreated core of 340 40gf/30;- Hardened layer depth: Hs = 20-800μm
 - Hardened Bandwidth: LHV = 1000-2700μm
- Welding and microwelding with electron beam on a preselected variable curve of the piece:
 - Welding thickness: 0.05...100 mm, a single pass;
 - Welding width: between 0.1...5 mm;
 - Welding speed: 10 m/min.



Screen Printing Equipment - GILCO

Size A0
Layer thickness: 2-10 μm
Working pressure: 5-6 bar
Adjustment x/y: 10/10 mm
Installed power: 3KW
Air consumption: 0.7 l/cycle



UV Exposure Systems for Photolithography

Exposure size: 4x4 inch
Light source: 60W UV light with Hg steam
Wave length: 270 nm
Voltage: 220V
Maximum current intensity: 20A



Laser interferometer, Agilent 10766A

- Used to determine actuators vibration, micro and displacement
 - Displacement resolution: 10 nm
- Type: Helium-Neon automatically adjusted on Zeeman output divided between two frequencies
 - Stabilization time: less than 10 minutes (usually 4 min).
 - Wave length in vacuum: 632.991354 nm
 - Laser spot diameter: 6 mm (0.24 in)



SolidWorks Office Premium 2009

Dimensional parametric modeling of products in research phase and Technical Documentation required for the implementation of prototypes of such products.

6.3.2. TESTING AND CHARACTERIZATION OF ADVANCED MATERIALS

Materials industry is developing rapidly determined that advanced materials underlie all economic development. Obtaining advanced materials technologies have the effect of the development of advanced methods of materials testing and characterization. In this regard, INCDIE ICPE-CA and the proposed development of a materials testing and characterization center equipped with advanced equipment.

Testing under mechanical stress

Mechanical Testing Equipment



Nominal Power: 5kN

- Allow to measure tensile strength, compression and bending in 3-point;
- Allow testing of plastics, carbon, metal and textiles.

Static Universal Testing Machine for Materials



- Types of tests: tensile, compression, bending in 3 points
- Maximum Strength: 30 kN;
- Measurement Accuracy: 0.5 %;
- Testing at temperature < 600 oC;
- Speed sleeper: 0.001 – 350 mm/min

Micro hardness Tester



- Vickers and Knoop microhardness, with charge ranging from 25 gf to 2000 gf;
- Equipped with digital camera.
- Digital image capture - opportunity to make a metallographic analysis of the sample before and after fingerprinting and to highlight the heterogeneity effects on fingerprint.

ATOS – 3D Digitizing System



This optical measurement system is based on correlation of triangulations and gray tones of the images captured by two CCD cameras. 3D coordinates of each pixel are calculated with great precision and thus generate polygonal surface of the object analyzed. ISO ATOS system allows digitizing objects with dimensions that are registered in volume measurement from 40x30x15 mm to 250x200x200 mm.

3D digitizing with ATOS system offers (regardless of the size and complexity of the subject):

- 3D coordinates with high precision
- scanning the object surface;
- comparison with nominal CAD model;
- full reports of measurements

This system allows data collection in the following areas

- Quality control;
- Reverse engineering;
- Rapid prototyping;
- Quick-milling
- 3D-archive
- Wear monitoring.



PONTOS Dynamic Measuring System



It is a completely non-contact system that allows capturing 3D positions of the markers found in the field of volume measurement, thereby achieving trajectory points under observation and the relative movements between these points, in the event of relative deformation. Replaces classical kinematics analysis, using accelerators or displacement transducers.

Investigations on the material composition

Thermo Solaar S4 Atomic Absorption Spectrometer

- qualitative and quantitative elemental analysis at ppm level;
 - detection limit: 0.1 to 1.0 mg / ml. It is a technique to detect concentrations of elements in solutions with concentrations lying between the maximum detection limit of 5% - minimum detection limit 1ppm. The wide detection range allows detection of a wide range of metallic elements (70 elements), namely from Li to Bi and lanthanides group (from Ce to Lu). Because the method is based on the Beer-Lambert law using a single set of lamps for each analyte of interest and the atomization of matrices

analyzed occurs oxyacetylene flame or nitrous oxide flame. This leads to a very high repeatability and traceability being a very powerful analytically tool bringing matrices solution is made with oven digestion ETHOS microwave using appropriate methods for interest elements.



Laser Ablation Mass Spectrometer

- Qualitative and quantitative elemental analysis of elements in solid samples or to the solution;
 - Mass range from 5 to 270 amu;
 - Laser to work directly on solid samples
 - Allow determination of elemental composition: semiquantitative - directly and quantitatively - by use of standards;
 - Resolution of detection: 0.5 amu;
 - Multi-element quick recovery;
 - low limits of detection;
 - isotopic information;
 - Axial field technology type (all generation and detection system is on a single axle).
- It is a device dedicated to trace analysis of materials (UltraTrace Analysis) either of solid materials (using laser ablation) either of liquid by the nebulizer chamber Scott (digested

material brought into solution)
The field measurement is between 500 - 100 ppm (upper limit of detection) and 1 ppm (lower limit of detection).



JASCO V-570 UV-Vis Spectrophotometer



The device determines the light absorption in the UV-Vis NIR colloidal solutions at wavelengths of 190 ... 1100 nm.
Optical System: monochrome single
Resolution: 2nm
Light source: deuterium lamp (190-350 nm) and halogen lamp (330-1100 nm)
Wavelength accuracy: +/- 0.3 nm
Spectral bandwidth: 2 nm.

LAMBDA 35 UV-Vis Spectrometer



Distance: 190 – 1100 nm; bandwidth: 0.5 – 4nm (variable)
Presents high stability, high accuracy and reproducibility;
Perfect for routine analysis of liquids, powders, solid substances, pastes and gases.

PerkinElmer 100 FTIR Spectrometer



Spectral resolution: 0.5 cm⁻¹ - 64 cm⁻¹;
Accuracy bandwidth of 0.1 cm⁻¹ to 1600 cm⁻¹ (6.25 mm);
Optical system has: an interferometer, source, detector, splitter wave.

Investigations on the crystalline structure

X Ray Diffractometer BRUKER D8 DISCOVER



- texture analysis;
- residual stress investigations;
- assessing change network parameters, and analysis of phase transformations based on temperature range: -180 °C 1100 °C.

X-ray Diffractometer BRUKER D8 Advance



- analyse of polycrystalline materials;
- acquisition and interpreting software;
- dynamic scintillation detector with low background (0.4 cps) and high dynamic range (up to 2 x 10⁶ cps)
- X-ray tubes with Cu and Mo anode;
- vertical goniometer.

Study of surface properties

Atomic Force Microscope



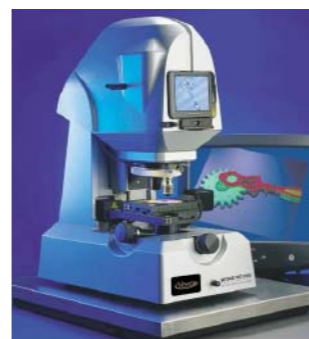
- image in accordance with electrical or magnetic properties of the surface MFM or AFM;
- detect changes in surface mechanical properties;
- elasticity, adhesion and related properties;
- nano-manipulation;
- nano-lithography.

NIKON Inverted Microscope Eclipse Ti-E fitted with Eclipse C1 and Confocal System



- simultaneous spectral acquisition of up to 32 channels in a single scan within a 350nm spectral bandwidth from 400-750 nm at user selected channel widths of 2.5 nm, 5 nm, and 10 nm;
- spectral acquisition of 2D X/Y, 3D X/Y/Z, 3D X/Y/T, 4D X/Y/Z/T images and data.
- 488 nm single line and 4-line multiline Argon ion lasers, 405 nm, 440 nm, and 638 nm directly modulated diode lasers, 561 nm diode pumped solid state (DPSS), and 488 nm solid state;
- EZ-C1 acquisition and analysis software supporting standard and spectral confocal acquisition, spectral unmixing, spectral graphing and presentation, 3D rendering visualization and time series in both spectral and standard modes;
- optical system includes Nikon CFI60 VC Plan Apo, Plan Apo, Plan Apo TIRF, Plan Fluor, S Fluor, and W Fluor series lenses.

Wyko NT 110 Optical Profiling System



- Use a non-invasive method of optical interferometry to determine the 3D surface topography (roughness) layer thickness etc.
- vertical measurement range 0.1 nm to 1 mm
- vertical resolution: < 1Å Ra
- RMS repeatability 0.01 nm
- vertical scan speed up to 7.2 μm/sec (288 μin./sec)
- lateral spatial sampling 0.08 to 13.1μm

Complete gas sorption analyzer AUTOSORB 1 C, Quantachrome UK Limited



Types of tests:

- determination of specific surface (BET, Langmuir)
- Plotting the isotherms for adsorption / desorption;
- Pore size distribution;
- Total volume of pores;
- Plotting the isotherms for chemical adsorption;
- Determination of specific active surface (metal).

Pressure range: 0 – 0.13 MPa;
 Specific surface: > 0.0005 m²/g;
 Pores volume: minimum detectable 0.0001 cm³/g;
 Pore diameter: 0.35 – 500 nm (in N₂);
 - Adsorbent gas: N₂, O₂, Ar, CO, CO₂, H₂, NH₃, Kr.

DAB 100-M Mercury Porosimeter



Technical characteristics:

- Pores diameter: min 10 μm
- Pores volume: 1.6 cm³/gr
- Specific surface: 0.85 m²/gr
- Tension: 480Dynes/cm
- Contact angle: 140grd

90 Plus Particle Size Analyzer



It is a device for determining the size of nanoparticles on the principle of dynamic light scattering. The device measures the zeta potential and molecular weight. Scattered light intensity fluctuations are analyzed by particles in Brownian motion to obtain an average size of polydispersion, and to obtain a full distribution. Determinations are only for nanoparticles dispersed in liquid medium. Dimensional measuring range is 2 nm ... 5 microns. Average diameter can be expressed in terms of: light intensity, the number or volume of nanoparticles in suspension.

Investigation of behavior of materials in heat stress conditions

System for thermal analysis (TG-DTA-DSC- FTIR)



- Temperature range: 25 ... 1500°C
- Heating rate: 0 ... 50 K/min
- Mass of the sample, including crucible: max.20 g
- Mass resolution: better as 2 g μ
- Maximum relative errors of signals DTA and DSC: 3% ±
- Measurements in controlled atmosphere
- Vacuum system
- Coupling system TA-FTIR
- Measuring range of the spectrometer FTIR: 7500 ... 370 cm⁻¹

Differential Scanning Calorimeter, 204 F1 Phoenix



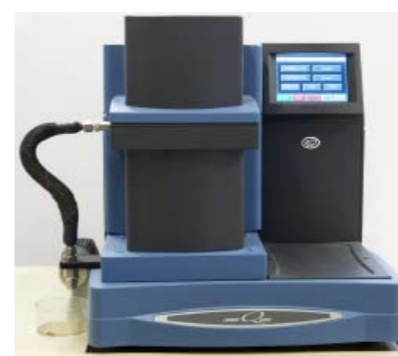
- Temperature range: -85 ... 600°C
- Resolution: < 0.3 μW
- Signal: maxim < 1450 mW
- Reproducibility: < 0.5 % for enthalpy variation; < 0.1 for temperature.
- Baseline linearity: < ± 0.5mW (for entire range of temperature)
- Heating rate: 0.001 K/min – 100 K/min

Dilatometer DIL 402 PC/4



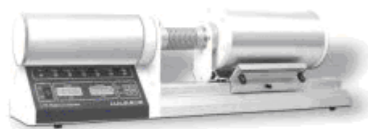
- Temperature range: 25 ... 1600°C
- Relative error of determining the temperature: 0.5 C ±
- Resolution): 12.5 nm
- The accuracy of determining the coefficient of expansion: α: 1x10⁻⁸ K⁻¹ (or 0.5% ± for most materials)
- Reproducibility for α: 1x10⁻⁸ K⁻¹
- Controlled atmosphere

Q800 Dynamic Mechanical Analyzer



- Maximum force: 18 N
- Minimum force: 0.0001 N;
- Force resolution: 0.00001 N
- Strain resolution: 1 nm
- modulus range: 10³ ... 3x10¹² Pa;
- Precision mode: ± 1%
- Sensitivity tanδ: 0.0001; Resolution tanδ: 0.00001
- Frequency range: 0.01 ... 200 Hz
- Dynamic sample deformation range: ±0.5 ... 10000 μm
- Temperature range: -150 ... 600 °C
- Heating rate: 0.1 ... 20 °C/min
- Cooling rate: 0.1 ... 10 °C/min
- Clips available: single and dual cantilever, compression, tension (film), three-point bending.

L75 PT Dilatometer



- Type testing:
 - linear thermal expansion;
 - Determine the coefficient of thermal expansion (CTE);
 - Determining a glass transition temperature (T_g) phase;
 - Measuring density and volume expansion of the metal powders compacted material;
 - Three-point bending analysis (to determine the mechanical stability);
 - measurement in tension of fiber and sheet metal;
- Temperature range: -150...700 °C; 25 – 2000 °C;
- Heating rate: 0.01 - 100 K/min;
- Cooling rate: 0.01 – 99.9 K/min;
- Sample range: $\phi = 7/12$ mm, length = max. 50 mm;
- Working atmosphere: vacuum, inert gas (Ar, N₂), oxidative

STA 449 F3 Jupiter Thermal Analyzer



Analysis on all types of materials, including heterogeneous substances;
 Actual measurements simultaneously TG/DSC/DTA;
 Temperature range: -150 ... +2000°C;
 Heating rate: 0.1 – 50°C/min;
 Cooling time: 1500 – 50°C < 30 min;
 Working in inert atmosphere or reducing gas, oxidizing, static or dynamic.

Xenon Flash Apparatus, LFA 447 Nanoflash



- Type testing: determining thermal diffusivity, specific heat and thermal conductivity;
- Materials analysis: metals, graphite, coatings, composites, ceramics, polymers etc;
- Sample dimension: $\phi = 12.7$ mm, thickness = 2 – 3 mm;
- Temperature range: 25 – 300 °C.

Investigation of behavior of materials under conditions of low temperature 1.9 ... 400k

Physical property measurement system – Quantum Design PPMS



- thermal field: 1.9...400K;
 - magnetic field: 0...9T.
- MEASUREMENT:**
- Heat transport (thermal conductivity, Seebeck effect)
 - Specific heat;
 - Power transmission (electrical resistivity in DC and AC, magnetoresistivity, Hall Effect, I-V characteristics, critical current superconductors);
 - Magnetometry (extraction in D.C. - magnetization: 2.5×10^{-8} 5 emus, magnetic susceptibility: $> 2 \times 10^{-8}$ emu, torque: 2×10^{-8} emu allow study direction dependence of the magnetization)
- DEVELOPMENT**
- Calibration of temperature sensors for cold area;
 - Experimental studies for making sensors: temperature, Hall Effect, Seebeck effect, etc.;
 - Experimental studies for the realization of materials with special characteristics (thermal conductivity, electrical conductivity, magnetization, etc.).

Investigation of the polymeric products behavior in condition of heat stress, UV radiation and nuclear

CHEMILUMINOGRAPH



- Evaluation of the oxidation and / or aging of polymeric materials;
- The level of efficiency of antioxidant activity of synthetic and natural compounds;
- Control processes for making polymeric materials
- Correlation of structural changes induced by climatic factors –
- Establish operating limits of polymer products by accelerated degradation tests,
- Characterization of degradation conditions for organic products such oils, greases.

Characteristics:

- Room temperature - 250°C
- Methods of measurement:
 - isotherm (intensity / time);
 - grade - 87 steps programmable
 - non-isotherm (intensity / temperature)

6.3.3. ELECTROMAGNETIC COMPATIBILITY

Contemporary society uses the electromagnetic field at different frequencies from zero frequency up to several hundred GHz.

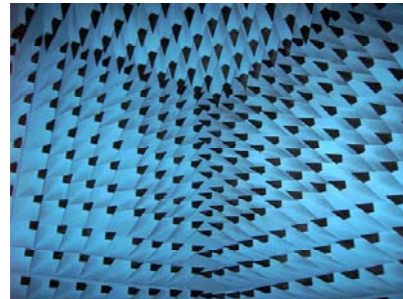
Applications are in a large range (to be found in the economy and transport, in domestic, military or medical) and are related to the transport of electricity, industrial or domestic applications, radio or TV emissions, the cellular communications, of wireless data transmissions and information, and position detection systems, etc

TV and radio emissions are made at frequencies that range from several hundred kHz and reach nearly 800 MHz, and transmitted power varies from approx. 100 W up to several hundred kW. Uses microwaves (MW) in mobile communications or radar detection known also exponential growth in recent decades. These applications cover the frequency range between 0.3 and 300 GHz.

Under these conditions, a major problem is to ensure a satisfactory operation of systems / equipment / appliances in the electromagnetic environment without producing noticeable disturbance of, or interfere with other devices. On the other hand, a very topical issue is the action of electromagnetic fields (produced by the operation of various communications systems or equipment) on biological structures.

As a natural conclusion, electromagnetic shielding becomes a critical issue for society today, both in the sense of electronic equipment secure and in order to protect biological.

Investment in equipment:



Anechoic chamber

Performance: frequency range: 200 MHz - 18 GHz.
Chamber is certified in according to SR EN 50147-1:1999.

In this chamber are made the following measurements:

- Measuring the electromagnetic screens attenuation used to protect electronic devices, buildings and/or populations exposed to electromagnetic radiations;
- Immunity testing for equipment to radiated radio frequency electromagnetic fields;
- Testing to fast power pulse on living organisms and electric devices;
- Testing of immunity at shock waves on living organisms and electric devices;
- Testing of immunity at oscillating waves of living tissues and electric devices;
- Testing of immunity at static electricity on living tissues and electric devices;
- Measuring the intensity of electric, magnetic fields and specific power of electromagnetic field;
- Characterization of materials in radio frequency field RF (e, |a, a).

Equipment

G-TEM Cell

Producer: ETS Lindgreen - Holland

RE Tests – 9kHz-5GHz
RI Tests – DC 20GHz
VSWR: < 1,5:1
Attenuation min 80dB in the range 10kHz-1GHz



Signal generator 250kHz - 40GHz

Amplitude: 0 to 65 dB



Spectrum analyzer E7405A



Frequency: 9kHz – 26.5GHz
Read frequency accuracy (start, stop, center, marker) ± (frequency indication x error of reference frequency + span accuracy + 15% of RBW + 10 Hz) + 1 Hz x harmonic mixing module)
Input attenuator: 0 at 65 dB, in steps of 5 dB
Input power: +30dBm (1W)
Pulse power: +50dBm (100W), (input attenuator > 30dB)
Output reference amplitude: -20dBm (nominal)

Amplifier, 10S4G18A



Frequency: 4 – 18 GHz instantaneous
Input impedance 50 ohms, VSWR 2.5:1 maximum
Output impedance 50 ohms, nominal
Output power: 20 W

Amplifier, BSA 0104-15/10D



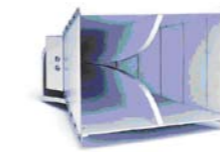
Frequency: 9 kHz – 4.2 GHz
Input minimum power -30 dBm (7 mV)
Output minimum power:
15W(+41.8 dBm) 9 kHz – 250 MHz
10W (+40.0 dBm) 200-4200 MHz
Input maximum power: +10 dBm

Power-meter E4417A EPM-P Series Dual-Channel Power Meter



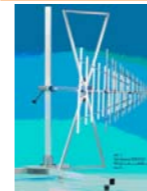
Frequency 9 kHz to 110 GHz, sensor dependent
Power sensor E4412A (E series CW-power sensor)
Power range: 100pW - 100mW (-70 - +20 dBm)
Frequency: 10 MHz – 18 GHz
Max. power: -200 mW (+23 dBm)
Power sensor E9304A (E series AVG power sensor)
Frequency: 9 kHz – 6 GHz
Power range: 1 nW – 100 mW (-60 - +20dBm)
Max. power: 320 mW (+25 dBm)

3115 Double-Ridged Waveguide Horn Antennas



Frequency: 1 - 18 GHz
Input power: 300 W

R&S HL562 ULTRALOG Antenna



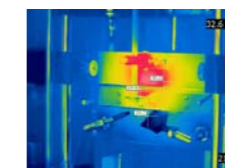
Frequency 30MHz-3 GHz

TPS Spectra 3000



Applications: Characterization of materials in any state: solid, liquid or gas; Analyze the chemical composition; Spectroscopy characterization; Determining the refractive index; Detection of impurities, explosives; Integrity of tablets.
Technical characteristics:
- spectral range: 0.1 – 3 THz;
- operating geometry: transmission & reflexion;
- frequency resolution - < 5 GHz;
- dynamic range: 70dB;
- spectral resolution 1-10MHz;
- bandwidth > 10nm;
- pulse repetition rate 80MHz;
- detector THz; transmitter THz;
- Analysis TDS.

THERMACAM P620 Infrared Detector Camera



Spectral analysis of infrared image for an electrical circuit

- spectral analysis of infrared images for electrical circuits, fire prevention, electrical connections, buildings, etc.

Technical characteristics:
• Field of view: - 22° horizontal x 16° vertical;

• Min. Focus distance: - 0.15m;
• Zoom: Infrared, 8x;
• Spectral field: - 8µm ÷ 14 µm;

• Resolution in temperature: - <0.05°C la 30°C.



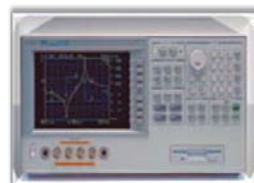
Measurement kit SMD 16034G



Measurement kit components 16047E, 40 Hz to 110 MHz



Measurement kit for magnetic materials 16454A



4294A Precision Impedance Analyzer

Measurement range: 40 Hz – 110 MHz
 - Determining the dielectric permittivity, loss angle tangent (IEC 60250);
 - Determining the magnetic permeability (IEC 60205) in frequency range 40Hz - 30MHz.

4339B High-Resistance Meter, DC

Voltage 0-1000Vcc
 Current 100pA-100uA
 Resistance 10⁶-10¹¹ ohmi



R&S ZVB4 Vector Network Analyzer



Characteristics:
 - R&S ZVB4 (1145.1010.04) - Vector network analyzer, 2 test ports, 300 kHz - 4 GHz;
 - R&S ZV-Z91 (1301.7572.25) - Flexible Precision Cable 50 Ohm N(m)/N(m); DC to 18 GHz; 635mm (25 inch).

R&S FSP Spectrum and Signal Analyzer



Technical characteristics:
 - Frequency range 9 kHz to 13.6 GHz
 - Resolution bandwidth: 1 Hz to 10 MHz
 - Average noise for display: -155 dBm (1 Hz)
 - Phase noise: -113 dB (1 Hz), la 10 kHz
 - Channel filters: 100 Hz to 5 MHz and filters RRC
 - Filter FFT: 1Hz to 30 kHz
 - Accuracy: incertitude of measurement 0.5 dB up to 3.6 GHz

Portable EMF measurement system

R&S TS-EMF (1158.9295.03)
 Frequency range: 30 MHz ... 3 GHz
 Connection RF
 Protected at environment and mechanical accidents
 Level of electric field: 1 mV/m ... 100 V/m



6.4. R&D equipment and specific research facility

6.4.1. TANGIBLE EQUIPMENT

No	Equipment Name	Performance and facilities
1.	Driving Generator System	System is represented by a 100 kW engine to drive the slow generators (500-500 rpm) synchronous with permanent magnet, asynchronous with applications in wind and hydropower
2.	UCI -150Ultrasonic Bath 5.7 l	Homogenization of ceramic compositions, solutions or suspensions of materials, also for cleaning and washing ceramic parts or glassware
3.	Recirculating Cooling Water System	The system was manufactured in INCDIE ICPE-CA, in order to provide cooling water necessary to technological equipment that requires such a utility. By achieving this objective was to reduce water consumption from water supply system and ensure cooling medium in situations where water supply is interrupted by the water supply system. It serves Degussa oven and ASTRO hot-press. Characteristics: - water storage capacity: 2.0 m ³ ; -pumping capacity: 2 adjustable flow pump JET62M0.4...2.7 m ³ /h; - cooling capacity: 2 heat exchangers (radiators car) that provides chilled water flow of 0.5 m ³ / h, 1.2 m ³ / h.
4.	Impulse Magnetizer	The system was created in the institute. - Magnetization of high energy permanent magnets, NdFeB type - Obtaining nanopowders, using the explosion of wires (made of different materials, electrical conductive)
5.	Melting Equipment with magnetic levitation	Elaboration in magnetic levitation of alloys or pure elements with high melting temperature. Design capacity: ~ 50 gr Working environment: vacuum or controlled atmosphere. Advantages for elaborate on magnetic levitation: - Lack of contact between melt and crucible, thus avoiding contamination molten alloys or elements of any components of the crucible - Will follow the introduction of development in the cold crucible (water cooled crucible).
6.	INNOVA U 101 Vertical Ultrafreezer NEW BRUNSWICK SCIENTIFIC	Application: study the behavior of materials at low temperatures, obtaining diamond-like carbon films by electrochemical methods
7.	Interactive whiteboard with videoprojector	Used for presentations, seminars, both as a classic board and to make corrections and annotations in real time on the material presented
8.	Videoprojector ceiling holder	

No	Equipment Name	Performance and facilities
9.	MLS12/30 Guillotine for boards cutting	Allows cutting flat sheets max. 1275mm, with thicknesses up to 3mm (400N/mm ²), max. 32 cuts per minute. Use tools and devices to achieve.
10.	CANON I – SENSYS MF 8180C Copy Machine	Allow scanning / printing / copying and sending faxes. Functional characteristics are: Laser Multifunction A4 (Print, color scan, fax and copying color / ADF + working mode network) printing speed: 19 mono pages per minute., 4 color pages per minute., resolution 600 x 600 dpi, 2400 x 600 dpi, print memory 128MB total, 701 black toner cartridge, toner cartridge 701 cyan, 701 magenta toner cartridge, toner cartridge 701 yellow, cylindrical cartridge 701, 500-sheet paper capacity, 50 page ADF, fax transmission speed: approximately 3s / page, Super G3, 33.6 Kbps, fax memory: 256 pages, scan resolution: 600 x 600 dpi optical, 9600 x 9600 dpi enhanced, copy speed: 22 copies / min., 50-200% zoom, USB 2,0 Hi-Speed.
11.	Stainless steel ball mill	Enable automatic and controlled mixing the sample for FTIR
12.	Hydraulic press with vacuum system	Enable pressing the sample for FTIR allows a compact and uniform piece
13.	PULVERISETTE 5 Laboratory Planetary Ball Mill	Enable automatic execution of toroidal coils of the receiver inside diameter between 10-63 mm and wire diameter between 0.05 to 1.2 mm. It is used to achieve toroidal micro-coils.
14.	KIPOR KDE 12STA3 Diesel Generator	Allow removal photoresistors SU8 constant temperature using free radicals generated in plasma process using gas O ₂ , CF ₄ and N ₂ . SU8 is used to remove exposed by photolithography and electrochemical deposition of a metal t in the LIGA technology.
15.	210-5000 CM-1 ATR Accessory: extension of spectral domain	Allow FTIR measurements in the spectrum range: 210 - 5000 cm ⁻¹ .
16.	Sample Holder for TG-DSC	It is a DC motogenerator, for supply in case of power outage, the <i>integrated system for determining physical properties - PPMS</i> . It has an automation block that allows its automatic start in case of power interruption in the network. It is an enhancement, not a research facility itself.
17.	Liquid Nitrogen Cooling System for DMA Q800	Allow FTIR measurements a broad spectrum domain 210 - 5000 cm ⁻¹ .
18.	SR 200 Rotor Colloidal Mill	Enables the electrical properties, magnetic and thermal solid materials in a thermal area expanded (1.8 ... 400K), the variable magnetic field (0 ... 9T), with measurement error max. 5%.
19.	Accessories for FT-IR Spectrophotometer (spectra library SADTLER COAT. Chem)	SPECTRUM 100 Spectrophotometer, with UATR accessories (Universal with Crystal Diamond) identifying compounds semiconductors, by comparison with a known range located in SADTLER spectra library endowment.

No	Equipment Name	Performance and facilities
20.	Accessories for FT-IR Spectrophotometer (library ORGANONE ETC)	SPECTRUM 100 Spectrophotometer, with UATR accessories (Universal with Crystal Diamond) identifying organic compounds, organic-metallic and inorganic, by comparison with a known range of fitted spectra libraries.
21.	ML 9830B CO Analyzer	Dispersive infrared photometer (IR) to measure accurately low concentrations of CO (0-100 ppm order). He is part of a computer system component that explores communication and real-time environmental risk factors and public health.
22.	Measuring System of electrical parameters for ferroelectric materials (FE MODULR samples HEAD, LASER INTERFEROMETER, U)	Measurement of ferroelectric materials hysteresis, having the opportunity to further determine the shift parameter, d33, important in piezoelectric material characterization.
23.	Command and control system of focusing and deflection coils of the electron beam	System includes: a) Remote Beam Trek Controller: - command for 3 channels 1...4A (deflection x-y, focusing); - setting of scanning area; - remote TFT LCD full color QVGA touchscreen; - generation of standard scanning pattern sites defined by the user; b) Interface Controller - electron gun;
24.	5 kW PEM Fuel Cell based Co-Generation System	Field of application: - Stationary applications - hydrogen based electro-thermal station (230V / 50Hz / 1.8kW _e + 3.2kW _t)
25.	Silver Nanoparticle Generator (GMCO 1H Generator + BAE01 Block Stirrer	This generator is used to: - obtaining the solution by electrochemical colloidal silver, giving the advantage of high purity solutions needed, especially in biomedical applications; - Ag deposit in the form of nanoparticles on the surface of metal oxide nanoparticles, such as TiO ₂ and ZnO in aqueous suspensions, with applications in photocatalysis.
26.	Equipment for determining the low temperature properties and obtaining low temperatures	Allows obtaining low temperatures (4.2 ... 300K), maintaining low temperatures, and temperature measurement and control in the field of 4.2 ... 300K. Thus, the equipment allows the experimental study of superconducting materials and characteristic properties of superconducting windings.
27.	IMAGO X5E Graphical Workstation	The very structure of performance and reliability (dual quad core processor, 8 GB RAM, 5 x HDD RAID Quadro FX5600 / Video 1.5 GB) to ensure optimum running speed and stability of CAD / CAM / CAE used in the research process of the institute.
28.	Monitor for cryogenic temperatures	Equipment for measuring of cryogenic temperature in the field (4.2 ... 300K) with eight independent channels. Can work with various temperature sensors such as Pt100, semiconductor diodes and CERNOX. Temperature measurement accuracy: 0.010 K.

No	Equipment Name	Performance and facilities
29.	MEANWELL TS-1500-248 B Inverter	AC - DC converter (24 V DC - 230 V AC). Are part of the conversion system of wind energy in electric power

6.4.2. INTANGIBLE EQUIPMENT

No.	Equipment Name	Performance and facilities
1.	COREL DRAW 12 FULL 01.04.06.99.0466	Complex package of graphics software which allows automatic drawing, processing and use of special effects objects.
2.	BIT DEFENDER PRO package LIC 10DPRO010 01.04.06.99.0477	Romanian antivirus, license purchase at specialty sites, figure as the safest antivirus. License valid for one year.
3.	MS FRONT PAGE 2003 WIN32-392-02347+MS OFFICE SBED 2003	It is a program used to design web pages, more friendly and easy to operate comparing programming language than classic HTML.
4.	Software connection between NX-CAM and CNC machining center TOPPER TMV400 FANUC (post processing)	Processing program to generate machine code directly from the module in the CAM software package NX6.0. It is used to reduce the execution time of transfer of a landmark design.
5.	NX 6 – Siemens PLM Software NX Model NX Drawing NX Manufacturing NX Nastran	<ul style="list-style-type: none"> • NX Model and NX Drawing – cover requirements CAD for three-dimensional modeling of components and products; • NX Manufacturing – enables import 3D models made in CAD system, data input needed for processing parts (equipment features, sequence of operations, working regimes, features of used tools etc.) and development of machine code that can be transferred to numerical controlled tools used in processing; • NX Nastran – allow simulating the mechanical, thermal, fluid and electromagnetic phenomena which appears in functioning of studied products for their analysis and optimize.
6.	SolidWorks Office Premium 2009	Offers comprehensive capabilities in terms of three-dimensional parametric modeling of products from the research phase, and develop technical documentation necessary for the implementation of prototypes of such products. Simulation modules included in this software and SolidWorks Simulation, SolidWorks Flow Simulation and COSMOS EMS phenomena allow mechanical, thermal, fluid and electromagnetic products appear to function studied to analyze and optimize them.
7.	Software <i>Biblioteca BiblioPortal</i>	The application shows as a website easy to use. The system is designed as a portal application. This portal has several sections and each section has several substrates: our Library, Points for EU information, News, Communicate, Search, site Map. This application has a login to different user groups, each with a name and a password, which establish the access level of the person concerned. Sections: our Library, Points for EU information, News, Communicate, Search, site Map, makeup the website, and section Cataloging and Management accesses the complex application behind it.

No	Equipment Name	Performance and facilities
8.	Integrated System for Data Processing in R&D Management – EXMAN 3.W.3-07ICPECA	The system allows technical and economic supervision of research projects/. EXMAN is one of the best Integrated System for Data Processing in Management developed to meet the domestic and international legal framework in the economic field. EXMAN offers unique facilities for complex processing of documents flow, developing and overseeing the research contracts and related economic analysis and provides analytical and synthesis information, in real time, on the document contents and specific reports of 15 integrated interactive modules. EXMAN offers a full range of instruments for on-line operation, giving the possibility of obtaining a complete “radiography” of the company activities, essential for managers, economists and technical staff. During the program using all documents are processed on-line automatically, EXMAN System substituting the role of human operator in performing accounting records, economic phenomena being automated „caught” and “smart” at a high analytical level, in close correlation with the dynamic of database and agreed with applicable law.
9	LabVIEW	LabVIEW (short for Laboratory Virtual Instrumentation Engineering Workbench) is a platform and development environment for a visual programming language from National Instruments. The graphical language is named “G”. Originally released for the Apple Macintosh in 1986, LabVIEW is commonly used for data acquisition, instrument control, and industrial automation on a variety of platforms including Microsoft Windows, various flavors of UNIX, Linux, and Mac OS X.
10	Infolitica 2D/3D	Infolitica 2D/3D simulation software for electromagnetic fields let’s you rapidly model and predict the performance of any electromagnetic or electromechanical device
11	Auto-CAD	AutoCAD is a CAD (Computer Aided Design or Computer Aided Drafting) software application for 2D and 3D design and drafting. It was developed and sold by Autodesk, Inc. First released in December 1982, AutoCAD was one of the first CAD programs to run on personal computers, notably the IBM PC. At that time, most other CAD programs ran on mainframe computers or mini-computers which were connected to a graphics computer terminal for each user. AutoCAD can run on an emulator or compatibility layer like VMware Workstation or Wine, albeit subject to various performance issues that can often arise when working with 3D objects or large drawings.



7

Results of R&D activity

Scientific / Technical Papers Published In Specialized Isi Quoted Journals	85
Patents	91
Scientific papers published in other specialized journals, non-quoted ISI	93
Scientific papers presented at international conferences	97
Members in editorial boards of some ISI quoted journals (or included in the international database) and in international editorial boards	113
Members in editorial boards of some national journals	115
International Awards	115
National Awards	117

7. Results of R&D activity:

		No.
7.1.	Scientific / technical papers published in specialized ISI quoted journals ISI conference nominated	51 8
7.2.	Cumulative impact factor de impact of ISI quoted scientific papers	36.154
7.3.	Citation in specialized ISI quoted journals	145
7.4.	Patents (submitted / granted)	13 / 12
7.5.	Scientific papers published in other specialized journals, non-quoted ISI	36
7.6.	Scientific papers presented at international conferences	156
7.7.	Members in editorial boards of some ISI quoted journals (or included in the international database) and in international editorial boards	7
7.8.	Members in editorial boards of some national journals	7
7.9.	International awards	13
7.10.	National awards	7
7.11.	Number of PhD Coordinators	7
7.12.	Number of PhD	58

7.1 Scientific / Technical Papers Published In Specialized ISI Quoted Journals

No.	Title	Journal	Authors
1	Structural studies on serum albumins under green light irradiations	European Biophysics Journal, 2009	S. Comorosan S. Polosan I. Popescu E. Ionescu R. Mitrica L. Cristache A.E. State
2	Polydimethylsiloxane/silica composites incorporating pyrite powders for actuation elements	Polymer International, Volume: 58, Issue: 7, Pages: 745-751, Published: Jul. 2009	M. Cazacu M. Ignat C. Racles G. Zarnescu
3	Aromatic Poly(ether imide)s Containing Nitrile Groups	High Performance Polymers, Volume: 21, Issue: 2, Pages: 205-218, Published: APR 2009	C. Hamciuc E. Hamciuc M. Ignat G. Zarnescu
4	Smart textiles for noninvasive monitoring of physiological signals. Part II: Interactive textile product for monitoring mechanical vibration, as responses of certain physiological signals	Industria Textila, Volume: 60, Issue: 5, Pages: 249-253, Published: 2009	E. Carpus A. Dorogan E. Visileanu M. Ignat
5	The influence of using different substrates on the structural and optical characteristics of ZnO thin films	Applied Surface Science, Volume 256, Issue 6, Pages 1807-1811, ISSN: 0169-4332, 2009	P. Prepelita R. Medianu B. Sbarcea F. Garoi M. Filipescu
6	Effects of mechanical alloying on the hydrogen storage properties of the $Mg_{76}Ti_{12}Fe_{12-x}Ni_x$ ($x = 4, 8$) materials	Journal of Alloys and Compounds 488 (2009) 163-168, ISSN 0925-8388, 2009	M. Lucaci Al. R. Biris R. L. Orban G. B. Sbarcea V. Tsakiris
7	New composite powders with high antifungal properties	Optoelectronics and Advanced Materials – Rapid Communications (OAM – RC), vol. 3, issue 8, August 2009, p. 795 - 799, ISSN 1842-6573, 2009	S. Gavrilu M. Lungu F. Grigore N. Buruntia C. Groza
8	Stable colloidal silver solutions for different applications	Optoelectronics and Advanced Materials – Rapid Communications (OAM – RC), vol. 3, issue 6, June 2009, p. 634 – 637, ISSN 1842-6573, 2009	S. Gavrilu M. Lungu E. Enescu F. Grigore C. R. Ionescu
9	A Comparative Study Concerning the Obtaining and the Using of Some Ag-CdO, Ag-ZnO and Ag-SnO ₂ Sintered Electrical Contact Materials	Optoelectronics and Advanced Materials – Rapid Communications (OAM – RC), vol. 3, issue 7, July 2009, p. 688 – 692, ISSN 1842-6573, 2009	S. Gavrilu M. Lungu E. Enescu S. Nitu D. Patroi

No.	Title	Journal	Authors
10	Characterizations of the β TCP suspensions	Revista de Chimie, Vol. 60, No. 10, Oct. 2009, p. 1107 – 1109, ISSN 0034-7752, 2009	F. Grigore E. Andronescu S. Gavrilu M. Lungu Ch. Tardei
11	Magnetic materials for technical applications	Journal of Optoelectronics and Advanced Materials, vol. 11, p. 229 - 237, 2009	E. Burzo W. Kappel M. M. Codescu E. Helerea
12	Co(II)-Ni(II) heteropolynuclear coordination compound obtained through the reaction of 1,2-propanediol with metallic nitrates as precursor for mixed oxide of spinel type NiCo_2O_4	Thermochimica Acta, 493, 1 – 5 (2009)	M. Niculescu M. Birzescu R. Dumitru E. Şişu P. Budrugaec
13	Application of model-free and multivariate non-linear regression methods for evaluation of the thermo-oxidative endurance of a recent manufactured parchment	Journal of Thermal Analysis and Calorimetry, 97, 443 – 451 (2009)	P. Budrugaec
14	Thermal behavior of the system $\text{Fe}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$ – $\text{Bi}_5\text{O}(\text{OH})_9(\text{NO}_3)_4 \cdot 9\text{H}_2\text{O}$ –glycine/urea and of their generated oxides (BiFeO_3)	Journal of Thermal Analysis and Calorimetry, 97, 91–98 (2009)	B. Jurca C. Paraschiv A. Ianculescu O. Carp
15	A heterotrimetallic chain constructed from binuclear $[\text{Cu}(\text{II})\text{Mn}(\text{II})]$ nodes and trans- $[\text{Cr}(\text{NCS})_4(\text{pyz})_2]$ spacers	Revue Roumaine de Chimie, 54(2), 119–125 (2009)	A. Cucos E. Melnic Yu. A. Simonov M. Andruh
16	Investigation on silver nanoparticles interaction with collagen based materials	J. of Optoelectronics and Advanced Materials, 11, 845-851 (2009)	C. Gaidau A. Petica C. Ciobanu T. Martinescu
17	Investigation on antimicrobial activity of collagen and keratin based materials doped with silver nanoparticles	Romanian Biotechnological Letters, 14, 4665-4662 (2009)	C. Gaidau A. Petica C. Ciobanu T. Martinescu
18	Study of the corrosion process for some dental metal alloys under artificial saliva enriched with yeast and Streptococcus Mutans bacteria	Journal of Optoelectronics and Advanced Materials, 11, 1870-1873 (2009)	E. Gătin C. Berlic B. Iordache P. Prioteasa
19	Crystal engineering of hybrid inorganic–organic systems based upon complexes with dissymmetric compartmental ligands	Cryst. Eng. Comm., 2009, 11, 2571–2584, ISSN 1466-8033 (electronic), 2009	M. Andruh D. G. Brânzea R. F. Gheorghe A. M. Madalan
20	UV Irradiation and Weathering Effects on Amine-stabilized polypropylene	Materiale Plastice 46, no. 2, p. 149 – 152 (2009)	T. Zaharescu S. Jipa R. Setnescu W. Kappel T. Setnescu
21	Thermoluminescence Dosimetry for High Dose Using the Commercial Bottle Glasses	Revista de Chimie, 60, no. 9, p. 984 – 985 (2009)	S. Jipa T. Zaharescu W. Kappel R. Setnescu A. Mantsch

No.	Title	Journal	Authors
22	The Effects of γ -Irradiation on the Antioxidant Activity of Rosemary Extract	Optoelectronics and Advanced Materials – Rapid Communications, vol. 3, nr. 12, p. 1315 – 1320 (2009)	S. Jipa T. Zaharescu W. Kappel A. F. Danet C. V. Popa M. Bumbac L. M. Gorghiu A. M. Maris
23	Effect of Rosemary Extract on the Radiation Stability of UHMWPE	e-Polymers, no. 149 (2009)	T. Zaharescu S. Jipa D. A. Maris M. Maris W. Kappel
24	Thermal Stability of Isotactic Polypropylene Modified with CaCO_3 Nanoparticles	Polymer Bulletin, DOI10.1007/s00289-009-0213-1, 2009	S. Jipa T. Zaharescu P. Supaphol
25	Comparative Qualification Assessment of Polyethylene under γ -Irradiation	Materiale Plastice, vol. 46, nr. 4, p. 350 – 355 (2009)	T. Zaharescu E. D. Popescu S. Jipa G. Samoilescu
26	Thermoluminescence Dosimetric Features of Clear Crystal Glass	Optoelectronics and Advanced Materials – Rapid Communications, vol. 3, nr. 8, p. 845 – 848 (2009)	S. Jipa T. Zaharescu R. Setnescu I. V. Popescu C. Oros
27	Computation of the Electric Field in Cable Insulation in the Presence of Water Trees and Space Charge	IEEE Transactions on Industry Applications, Vol. 45, No. 1, pp. 30-43, 2009	C. Stancu P.V. Notingher F. Ciuprina P. Notingher Jr S. Agnel J. Castellon A. Toureille
28	Degradation Effects in EPDM/Cellulose Sandwich Structures	Optoelectronics and Advanced Materials - Rapid Communications, vol. 3, nr. 12, p. 1331 – 1335 (2009)	F. Buse T. Zaharescu S. Jipa
29	PANI TiO_2 nanostructures for fuel cell and sensor applications	Journal of Optoelectronics and Advanced Materials, vol.10, nr.11, p. 2985-2987, 2008	C. Cristescu A. Andronie S. Iordache S. N. Stamatina L. M. Constantinescu G. A. Rimbu M. Iordoc R. Vasilescu-Mirea I. Iordache I. Stamatina
30	Polyaniline/Maleic Acid Copolymers Composites: Synthesis and Characterization	Macromolecular Symposia, 263, 30–37 (2008)	M. Grigoras G.-C. Chitanu I. Popescu I.-M. Pelin G.-A. Rimbu

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31	Evaluation of Electrochemical Behavior and Surface Properties for Oxinium-like Zr-Nb Biomedical Alloys	Key Engineering Materials Vol. 415 (2009) pp 13-16, 2009	I. V. Branzoi M. Iordoc F. Branzoi
32	Thermal and radiation resistance of stabilized LDPE	Radiat. Phys. Chem., DOI: 10.1016. 2009.08.024, 2009	T. Zaharescu S. Jipa D. Henderson W. Kappel D.A. Maris M. Maris
33	Dielectric properties and thermal stability of γ -irradiated inorganic nanofiller modified PVC	Radiat. Phys. Chem., DOI: 10.1016.2009.08.018, 2009	F. Ciuprina T. Zaharescu S. Jipa I. Pleșa P. V. Notingher D. Panaitescu
34	Post-irradiation thermal degradation of PA 6 and PA 6,6	Radiat. Phys. Chem, DOI: 10.1016.2009.08.041, 2009	T. Zaharescu L. Andrade e Silva S. Jipa W. Kappel
35	Improvement in the thermal performance of polypropylene	IAEA TECDOC – 1617, 139 – 152 (2009)	T. Zaharescu
36	Microcellular carbon from polyacrylonitrile precursors	Journal of Optoelectronics and Advanced Materials, vol.11, nr.11, p. 1788 - 1793, 2009	G. Nan I. Stamin A. Andronie S. Iordache C. Cristescu A. Cucu A. Baci G. A. Rimbu
37	Electrochemical deposition of polyaniline thin films on carbonic substrates for utilization as hydrogen mediator and self catalyst in fuel cells	Revista de Chimie (60), nr.12, p.1285-1287, 2009	G. A. Rimbu M. Iordoc R. Vasilescu-Mirea I. Stamin T. Zaharescu
38	Polyaniline rod-like structure as self-electrocatalyst for hydrogen oxidation reactions	Optoelectronics and Advanced Materials – Rapid Communications, vol.2, nr.10, p. 876-880, 2008	G. A. Rimbu M. Iordoc R. Vasilescu-Mirea I. Stamin I. Iordache T. Zaharescu

No.	Title	Journal	Authors
39	A közm hálózatoknál használt polietilén mikrobiológiai károsodásai	Korróziós figyel , (revistă indexată ISI, citată în Science Citation Index Expanded), Veszprem, Hungary, ISSN: 0133-2546, 49, 3, pp. 31-37, 2009	I. Lingvai C. Groza C. Lingvai I. Csuzi
40	Some Observations about Solid State Diffusion in Metals and Alloys	Metalurgia International vol. XIV (2009), special issue no.10, pp.48, 2009	V. Pașcan E. Manta D. Patroi F. Radulescu A. Iorga
41	Composites materials used as anode for SOFC	Romanian Journal of Materials 2009, 39(3),180-18, , page 180-187 ISSN 1583-3186	G. Velciu Cr. Seitan F. Bogdan G. Sbarcea
42	Fe and Co alloyed NiAl powders for sensors applications	Metalurgia International, Special Issue No2, Vol. XIV (2009) p. 115-118, ISSN-1582-2214	M. Lucaci J. Pintea V. Tsakiris R.L. Orban
43	Synthesis of carbon nanotubes from acetylene on the FeCoMgO catalytic system obtained by ball milling	Journal of Physics: Conference Series 182 (2009) 012057, Processes in Isotopes and Molecules, doi:10.1088/1742-6596/182/1/012057, ISSN-1742-6596	A. R. Biris A. S. Biris E. Dervishi Z. Li F. Watanabe S. Simon D. Lupu I. Misan M. Lucaci
44	Studies Concerning Correlation Between Alloying Elements and Characteristics of Fe-Ni Alloys	Metalurgia International, vol. XIV (2009), Special Issue No. 3, page 53-56, ISSN-1582-2214	A. Popa V. Tsakiris C. Coman R. Butnaru C. Macovei
45	Effects of hot and cold rolling on the microstructure of low alloy Zn-Cu and Zn-Cz-Ti zinc alloy with improved corrosion resistance	Metalurgia International, vol. 14 (2009), Special Issue No. 3, page 23-26, ISSN-1582-2214	M. Faur B. Ghiban
46	Modeling and simulation of the warm forward extrusion process for some sintered round bars	Journal of Optoelectronics and Advanced Materials – Symposia, Vol. 1, No. 5, Nov. 2009, p. 971 – 974, ISSN 2066 - 057X	M. Lungu T. Canta D. Frunza S. Gavrilu F. Grigore
47	Ferromagnetic Fe and Co alloyed NiAl powders	Journal of Optoelectronics and Advanced Materials – Symposia, Vol. 1, No. 5, Nov. 2009, p. 879 – 883, ISSN 2066 - 057X	M. Lucaci S. Hodoroagea J. Pintea V. Tsakiris D. Cirstea L. Leonat

No.	Title	Journal	Authors
48	Alloyed NiTi shape memory alloys for MEMS components powder metallurgy processed	Journal of Optoelectronics and Advanced Materials – Symposia, Vol. 1, No. 5, Nov. 2009, p. 884 – 888, ISSN 2066 - 057X	M. Lucaci S. Hodoroagea V. Marinescu V. Tsakiris R. L. Orban G. Sbarcea D. Cirstea L. Leonat
49	Water-tree and Space Charge Characterization of Polyethylene Cable Insulation ac-aged in Aqueous Environment	Journal of Optoelectronics and Advanced Materials – Symposia, Vol. 1, No. 5, ISSN: 2066 - 057X, pp. 925-931, 2009	C. Stancu P. Notingher jr. P.V. Notingher J. Castellon S. Agnel A. Tourelle U. Nilsson A. Campus D. Wald
50	Ceramic based composite materials for welding processes. Preparation, characterizations and the weld quality	Romanian Journal of Materials, 39 (3), pag.188 – 195, 2009, ISSN 1583 – 3186	Ch.Țârdei Fl.Bogdan M.Ocheșel
51	The effect of electromagnetic fields on baker's yeast population dynamics, biocatalytic activity and selectivity	Studia Universitatis Babes-Bolyai, Chemia, ISSN 1224-7154, LIV, 4, 2009, pp.195-201, Cluj Napoca, (revistă indexată ISI si citată în Science Citation Index Expanded (also known as SciSearch®), Chemistry Citation Index®, Journal Citation Reports/Science Edition	D. Sandu I. Lingvay S. Lányi D. D. Micu C. L. Popescu J. Brem L. C. Bencze C. Paisz

ISI conference nominated

1. E. Carpus, A. Dorogan, E. Visileanu, M. Ignat, G. Onose, D. Nanu, I. Carpus, M. Buzdugan, *Accomplishing of convergent systems for mobile personalized information monitoring*, Smart Textiles, Book Series: Advances in Science and Technology, Volume: 60, Pages: 95-100, Published: 2009.
2. L. Pislaru-Danescu, M. Ignat, I. Puflea, V. Stoica, *The Determination of the Total Magnetic Losses in the Stator of the Asynchronous Electrical Micromachines Fed with Pulse Width Modulation, PWM, and with Triangular Waveforms, Respectively*, ICEM: 2008 International Conference on Electrical Machines, Vols 1- 4, Pages: 1382-1386, Published: 2009.
3. M. Ignat, G. Zarnescu, I. Peter, *The applications of the interference microscope on the electrical machines field*, ICEM: 2008 International Conference on Electrical Machines, Vols 1- 4, Pages: 2272-2275, 2009.
4. M. Ignat, G.Zarnescu, *The Nano and Micromanipulators based on magnetic bacterium*, Mining Smartness from Nature, Book Series: Advances in Science and Technology, Volume: 58, Pages: 177-182, Published: 2009.
5. C. Babutanu, C. Mateescu, *Biogas Generation. Aspects Concerning Anaerobic Digesters Hydrodynamics*, Proceedings ISI of the 6th International Conference Management of Technological Changes, Alexandroupolis, Greece, September 3 - 5, 2009, Vol. 2, p.13-16, ISBN 978-960-89832-8-1, 2009
6. S. Nicolaie, M Mihaiescu, D Marin, C Ilie, I. Chirita, Gh. Samoilescu, M. Zus, M.

Cazacu, *A new way of sailing in Danube Delta*, Proceeding of the 20-th World Symposium 2009, Intelligent Manufacturing & Automation. Theory, Practice & Education, Austria Center Vienna, 25-28 Nov. 2009, indexată ISI Thompson Routers, ISBN 978-3- 901509-70-4, ISSN 1726-9679

7. D. Marin, Gh. Samoilescu, S. Nicolaie, G. Olaru, R. Mates, *Numerical Simulations for a WaveDriven Hydro Pneumatic Electric Plant*, Proceeding of the 20-th World Symposium 2009, Intelligent Manufacturing&Automation". Theory, Practice & Education, Austria Center Vienna, 25-28 Nov. 2009, indexată ISI Thompson Routers, ISBN 978-3- 901509-70-4, ISSN 1726-9679
8. D. Marin, Gh. Samoilescu, S. Nicolaie, G. Olaru, L. Cizer, *Experimental Model for an Electric, Hydro Pneumatic Wave-Powered Plant*, Proceeding of the 20-th World Symposium 2009, Intelligent Manufacturing&Automation". Theory, Practice & Education, Austria Center Vienna, 25-28 Nov. 2009, indexată ISI Thompson Routers, ISBN 978-3- 901509-70-4, ISSN 1726-9679

7.2 Patents

7.2.1 Patents Submitted At State Office For Inventions And Trademarks (OSIM) – To Be Evaluated -

No.	Title of submitted patent / registration no.	Inventors/authors
1	<i>Double excited electric machine</i> registration no. 00114 / 2009	Kappel W. Gavrila H. Mihaiescu M. Nicolaie S. Ionita V. Marin D. Macamete E.
2	<i>Waves channel for research</i> registration no. 000115 / 2009	Olaru Gh. Nicolaie S. Ilie C. Samoilescu G. Marin D.
3	<i>Xerogel doped carbonic materials for polymer membrane fuel cells</i> registration no. 00266 /2009	Hristea G. Alexandru C.
4	<i>Microactuator based on polymers</i> registration no. 00447 / 2009	Ignat M. Zarnescu G. Hamciuc E. Hamciuc C. Cazacu M. Sava I.
5	<i>Humidity microsensors</i> registration no. 00448 / 2009	Ignat M. Hristea G.
6	<i>Laboratory equipment for determining the hydro-dynamic performances of porous diffusers</i> registration no. 00549 / 2009	Bunea F. Oprina G. Baran Gh.
7	<i>Obtaining method for hydrogen storage materials</i> registration no. 00637 / 2009	Lucaci M. Enescu E. Lungu-Dodu P.
8	<i>Obtaining method of shape memory materials of NiTi intermetallic compound type</i> registration no. 00638 / 2009	Lucaci M. Enescu E. Tsakiris V.

No.	Title of submitted patent / registration no.	Inventors/authors
9	<i>Electrochemical method of obtaining ecologic nanostructured dispersed systems with photo-catalytic and antimicrobial activity</i> registration no. 00961 / 2009	Anicai L. Petica A. Gavriliu S.
10	<i>Method and equipment for determining the viscosity of non-transparent and non-homogeneous liquids</i> registration no. 00962 / 2009	Cazacu M. D. Babutanu C. A.
11	<i>Method for stimulating the activity of metanogene microorganisms of sewage sludge</i> registration no. 01046 / 2009	Mateescu C.
12	<i>Technique for ecologic degradation of polyolefin materials wastes</i> registration no. 01059 / 2009	Zaharescu T. Jipa S. Mantsch A. Macamete E.
13	<i>Silver – metal oxide composite nanostructures with antimicrobial activity and its obtaining method</i> registration no. 01079 / 2009	Gavriliu S. Lungu M. V. Enescu E.

7.2.2 PATENTS GRANTED IN 2009 TO INCDIE ICPE-CA

No.	Title granted patent / patent no.	Inventors/Authors
1	<i>Carbonic nanocomposite material</i> patent no. 122293 / 2009	Banciu C. Rimbu G. Bondar A.M. Enescu E. Stamatin I.
2	<i>Magnetic nanocomposite material and its obtaining method</i> patent no. 122439 / 2009	Neamtu J. Kappel W. Georgescu G. Verga N. Jitaru I. Iovu H. Malaeru T.
3	<i>Obtaining method of carbonic material for anthocyanin pigment biosynthesis</i> patent no. 122450 / 2009	Hristea G. Cogalnicenu G. Brezeanu A.
4	<i>Material with photo-luminescence sensitive to oxygen concentration in fluid media</i> patent no. 122455 / 2009	Setnescu T. Jipa S. Setnescu R. Dumitru M. Danet A. Bucur P. Chivulescu A.
5	<i>Method for determining the stability and content of antioxidant from raw materials and shape memory products induced by irradiation</i> patent no. 122464 / 2009	Setnescu R. Jipa S. Setnescu T. Dumitru M. Marcuta M. Marin Gh. Mihalcea I. Valcu R.
6	<i>Obtaining method of silver – tin oxide sintered electrical contacts with microns microstructure</i> patent no. 122445 / 2009	Gavriliu S. Lungu M. Enescu E. Lucaci M.
7	<i>Magnetic axial coupling</i> patent no. 122517 / 2009	Kappel W. Mihaiescu Gh.

No.	Title granted patent / patent no.	Inventors/Authors
8	<i>Electromagnetic pulse generator</i> patent no. 122509 / 2009	Ignat M. Zarnescu G. Paslaru Danescu L. Macamete E. Soltan S. Stoica V. Puflea I.
9	<i>Rotary piezoelectric micromotor</i> patent no. 122516 / 2009	Ignat M. Zarnescu G.
10	<i>Hallbach cylinder, generator of rotational and homogeneous magnetic field</i> patent no. 122571 / 2009	Kappel W. Patroi E. Erdei R.
11	<i>Fe-Cu composites for anisotropic magnets and its obtaining method</i> patent no. 122570 / 2009	Kappel W. Romalo D. Codescu M.M. Stancu M. Pintea J. Filoti G. Kuncser V.E. Valeanu M.C. Tolea F. Schinteie G.A.
12	<i>Method for determining the reaction to oxidation of vegetable oils and fats</i> patent no. 122636 / 2009	Setnescu R. Setnescu T. Jipa S. Dumitru M. Lungulescu M. Chelnerescu S. Valcov N.

7.3 Scientific papers published in other specialized journals, non-quoted ISI

No.	Title of scientific papers	International Conference	Authors
1	Stages of noises and vibration to a butterfly valve in working with cavitations	U.P.B., Sci. Bull., Series D, Vol. 70, No. 4, page 15-22, 2008, ISSN 1454-2358	Baran Gh. Safta C.A. Bunea F. Oprina G.
2	Considerations about an informatics' system for the real time analysis of risk factors on the environment	4-th International Conference Welding in Maritime Engineering, Bol/Brac Split, Croatia, 13-16 May 2009, pp. 241-248, ISBN 978-953-7518-01-1	Alecu G. Tsakiris V. Voina A.
3	Diffusion Bonding of some dissimilar metals	4 th International Conference Welding in Maritime Engineering, Bol/Brac Split, Croatia, 13-16 May 2009, pp.271-280, ISBN 978-953-7518-01-1	Tsakiris V. Lucaci M. Alecu G. Kappel W.
4	Preparation and some properties of MgB ₂ /Fe wires	Journal of Optoelectronics and Advanced Materials – Symposia, Vol.1, No. 1, pp. 24-28, 18 May 2009, ISSN 2066 - 057X	Alecu G. Voina A. Hodorogea S. Stancu N.

No.	Title of scientific papers	International Conference	Authors
5	Workplace carbon monoxide assessment for reduction of occupational exposure	Conference with international NATURA-ECON 2009 „ <i>Current issues of environment, interdependent of factors influencing biotechnology, industrial and economic</i> ”, 28 May 2009, Sfântu Gheorghe, Romania, ISBN 978-973-610-907-2, pp. 73-80	Mateescu C. Alec G.
6	Managing electrical equipments waste for a sustainable development	Conference with international NATURA-ECON 2009 „ <i>Current issues of environment, interdependent of factors influencing biotechnology, industrial and economic</i> ”, 28 May 2009, Sfântu Gheorghe, Romania, ISBN 978-973-610-907-2, pp. 202-211	Alec G. Mateescu C. Gavriliu S.
7	L'Analyse du cycle de vie - Méthode indispensable d'évaluation en éco-conception	Premier Colloque Francophone sur les Matériaux, les Procédés et l'Environnement CFMPE 2009, 31 mai - 06 juin 2009, Busteni, Roumanie, ISBN 978-606-521-328-9, pp. 113-116	Alec G. Mitrea S. A.
8	Monitoring of carbon monoxide in ambient air in accordance with EU requirements	International Symposium "The Environment and Industry", 28-30 October 2009, Bucharest, Romania, ISSN 1843-5831, vol. 1, pp. 373-378	Mateescu C. Alec G. Zamfir S.
9	Obtaining of the MgB ₂ wires and their characterization	Journal of Optoelectronics and Advanced Materials – Symposia, Vol.1, No. 5, pp. 863-866, 2 November 2009, ISSN 2066 - 057X	Alec G. Voina A. Aldica V. Hodorogea S. Zamfir S. Mateescu C.
10	Obtaining of processed gradient for structure of preselected areas of piece using integrated systems on electron beam equipment	Journal of non-conventional technologies, no.2, Ed. Polytechnic, Bucharest, 2009, page 74-79, ISSN-1454-3087	Neagu D. Kappel W.
11	Research activity from the field of non-conventional technologies during 1999-2009	Ed. Polytechnic, Bucharest, 2009, page 5-10, ISSN-1454-3087	Neagu D.
12	Numerical solving of thermal model to obtain the surface isotherms at electron beam hardening	Journal EEA, vol. 57, nr.3, Ed. Electra, Bucharest, 2009, page 28-31, ISSN 1582-5175	Neagu D.
13	Microelectromechanical actuators based on elastomer and polyimide membranes	Electromotion, vol. 16, no. 3, July - Sept. 2009, pp 148 - 154	Ignat M. Zarnescu G. Cazacu M. Hamciuc E. Hamciuc C.
14	About the degradation mechanism of underground power cables	Annals of University of Oradea – Energy Volume, ISSN 1224-1261, Vol. 15, Section no. 1, 2009, pp.68-72	Lingvay I. Groza C. Csuzi I. Lingvay C. Ciogescu O.

No.	Title of scientific papers	International Conference	Authors
15	Antimicrobial Colloidal Suspensions of Silver-Titania	The Open Chemical and Biomedical Methods Journal, 2009, vol. 2, p. 77 – 85, ISSN 1875-0389	Gavriliu S. Lungu M. Gavriliu L. C. Grigore F. Groza C.
16	Preliminary studies regarding the possibility of silver coatings formation from choline chloride based ionic liquids	Paper to be published in UPB Sci. Bull.Chim.	Florea A. Petica A. Anicai L. Visan T.
17	Surface treatments for Al and its alloys based on transitional metals and rare earth compounds with anticorrosive characteristics	Oral presentation at 4th National Conference with international participation "Corrosion and Anticorrosive Protection", 24-26 September 2009, Cluj-Napoca, paper to be published in Journal "Corrosion and Anticorrosive Protection"	Anicai L. Petica A.
18	Synthesis and Corrosion Characterization of Electrodeposited Ni-Mo Alloys Obtained from Aqueous Solution	Paper to be published in UPB Sci. Bull.Chim.	Prioteasa P. Anicai L. Golgovici F. Visan T.
19	Copper alloys with superplasticity properties / Aliaje de cupru cu proprietati de superplasticitate	Metallurgy and New Materials Researches / Cercetari Metalurgice si de Noi Materiale, Vol. XVII, No. 4, 2009, page 45, ISSN 1221-5503	Popa A. Tsakiris V. Coman C.
20	Morphology of the metallic tin allotropic transformation and impurities role in structural stability assurance	UPB Sci. Bull.Chim., Series B, 2010, ISSN 1223-7027	Faur M. Kappel W. Ghiban B. Enescu E. Lungu M.
21	Antimicrobial Colloidal Suspensions of Silver-Titania	The Open Chemical and Biomedical Methods Journal, 2009, vol. 2, p. 77 – 85, ISSN 1875-0389	Gavriliu S. Lungu M. Gavriliu L. C. Grigore F. Groza C.
22	Polyurethane Gel with Silver Nanoparticles for the Treatment of Skin Diseases	The Open Chemical and Biomedical Methods Journal, 2009, vol. 2, p. 86 - 90, ISSN 1875-0389	Ciobanu C. Gavriliu S. Lungu M. Gavriliu L. Ciobanu L. C.
23	Antioxidant and Radioprotective Features of Rosemary (Rosmarinus Officinalis) Extracts	Journal of Science and Arts, vol. 9, nr. 2, p. 262 – 267 (2009)	Maris M. Maris D. A. Jipa S. Zaharescu T. Tanase E. Gorghiu L. M. Maris M.

No.	Title of scientific papers	International Conference	Authors
24	Modifications in Functional Characteristics of Ethylene Vinylacetate Material	Scientific Bulletin of the Electrical Engineering Faculty, vol. 9, nr. 1, p. 29 – 34 (2009)	Jipa S. Zaharescu T. Setnescu R. Gorghiu L. M. Dumitrescu C. Gorghiu G. Oros C.
25	The Assessment of Degradation Resistance of PP Modified with Nanoparticles of CaCO ₃	Scientific Bulletin of the Electrical Engineering Faculty, vol. 9, nr. 1, p. 49 – 52 (2009)	Zaharescu T. Jipa S. Setnescu R. Gorghiu L. M. Dumitrescu C. Gorghiu G. Oros C.
26	Studies of absorbing microwave radiation in electromagnetic shields – Current issues of environment, interdependent of factors influencing biotechnology, industrial and economic	NATURA - ECON 2009, Sfântu Gheorghe, Romania, vol. 1, 212-216, Publishing House Presa Universitara Clujana, pg 212 – 216, ISBN 9789736109072	Pintea J. Morari C. Balan I.
27	Aeration parameters optimization for an imposed energy consumption	Acta Technica Napocensis, Technical University of Cluj-Napoca, series: Applied Mathematics and Mechanics, Nr. 52, Vol.II, The 1st International Symposium on Green Energy, ISSN 1221-5872, p. 279-284	Bunea F. Oprina G. Ciocan G.D. Băran G. Ilie C. Pincovschi I.
28	Optimization study of the aeration devices for eco-turbines	<i>Technologies of Energy</i> , ISSN 1842-7189, to be published no. 3/2010	Bunea F. Oprina G. Ciocan G. Baran G. Mandrea L.
29	Contribution to develop a modern technical solution for increase of maintenance and reliability of underground power lines by corrosion control of the underground power cables	Annals of University of Oradea –Energy Volume, ISSN 1224-1261, Vol. 15, Section no. 3, 2009, pp.347-352	Lingvay I. Lingvay C. Csuzi I.
30	About the degradation mechanism of underground power cables	Annals of University of Oradea –Energy Volume, ISSN 1224-1261, Vol. 15, Section no. 1, 2009, pp.68-72	Lingvay I. Groza C. Csuzi I. Lingvay C. Ciogescu O.
31	Carbonaceous nanocomposites for electromagnetic interference applications	Journal of Optoelectronics and Advanced Materials – SYMPOSIA, Vol. 1, No.5, p. 967 – 970 (2009)	Banciu C. Ion I. Bara A. Rimbu G.A. Bondar A.M.
32	Surface Characterization and Corrosion Behaviour of Ti Based Alloys in Fetal Bovine Serum	UPB Sci. Bull., Series B+, to be published	Branzoi I.V. Iordoc M. Branzoi F.

No.	Title of scientific papers	International Conference	Authors
33	Electrical Treeing – A Determinant Factor of Power Cables Failure	Journal Electrotehnica, Electronica, Automatica, Vol. 57, nr. 2, April - June, ISSN 1582-5175 pp. 51-58, 2009	Notingher P. V. Plopeanu M. Stancu C.
34	Water Tree Influence on Space Charge Distribution and on the Residual Electric Field in Polyethylene Insulation	Journal of Electrical and Electronics Engineering, Vol.2, Nr.2, ISSN 1844-6035, May 27-29, 89-94, 2009	Stancu C. Notingher P. V. Notingher P. jr. Plopeanu M.
35	Water Trees – Electrical Ageing Factor for Power Cable Insulation	Scientific Bulletin of Politehnica University from Timisoara, Energy Volume, November 5-6, Timisoara, ISSN: 1582-7194, pp. 369-376, 2009	Stancu C. Notingher P. V. Notingher P. jr.
36	Influence of the Surface Defects on the Absorption/Resorption Currents in Polyethylene Insulations	To be published in Journal of Politechnic Bulletin	Stancu C. Notingher P.V.

7.4 Scientific papers presented at international conferences

No.	Title of scientific papers	International Conference	Authors
1	Environment electromagnetic pollution impact against electrochemical processes within biosphere	Conference with international participation NATURA-ECON 2009 „Actual issues of environment, interdependence of factors influencing biotechnology, industrial and economic”, 28 May 2009, Sfântu Gheorghe, Romania	Lingvay I. Alec G.
2	Energy production and consumption impact against the environment	Conference with international participation NATURA-ECON 2009 „Actual issues of environment, interdependence of factors influencing biotechnology, industrial and economic”, 28 May 2009, Sfântu Gheorghe, Romania	Lingvay I. Alec G.
3	Degradation due to environment factors of polyethylene components used for distribution networks of urban utilities	Conference with international participation NATURA-ECON 2009 „Actual issues of environment, interdependence of factors influencing biotechnology, industrial and economic”, 28 May 2009, Sfântu Gheorghe, Romania	Lingvay I. Budrugaec P. Alec G. Groza C.
4	Informatics' System for the Real Time Analysis of the Environment Risk Factors	The 4 th International Conference on Powder Metallurgy RoPM 2009, 8-11 July 2009, Craiova, Romania	Alec G. Enache M.
5	Environmental Aspects of Ceramic Products - Life Cycle Analysis	The 4 th International Conference on Powder Metallurgy RoPM 2009, 8-11 July 2009, Craiova, Romania	Mitrea S. A. Alec G.
6	The Life Quality and the Industrial Technologies Impact	1st International Workshop “Innovation and Evolution by R&D – SMEs Strategic Partnership” 10-12 September 2009, Bucharest, Romania	Alec G.

No.	Title of scientific papers	International Conference	Authors
7	Comparative Study on Intensity Radial Low Frequency Electromagnetic Fields from Various Disturbances	6 th International Workshop of Electromagnetic Compatibility CEM 2009, 12-14 November 2009, Constanta, Romania	Lingvay I. Czuzi I. Felea I. Silaghi S.-E. Iordache I. Alec G.
8	Exposure to Electromagnetic Fields, possible effects on Human Health	6 th International Workshop of Electromagnetic Compatibility CEM 2009, 12-14 November 2009, Constanta, Romania	Alec G. Kappel W.
9	Obtaining of processed gradient of structure on preselected areas of piece using integrated systems on electron beam equipment	14 th International Conference of Non-Conventional Technologies, 05-07 Nov. 2009, Baile Felix - Oradea	Neagu D. Kappel W.
10	Research activity in the field of non-conventional technologies during 1999-2009	14 th International Conference of Non-Conventional Technologies, 05-07 Nov. 2009, Baile Felix - Oradea	Neagu D.
11	Microelectromechanical actuators based on elastomer and polyimide membranes	Electromotion 2009 – Proceedings, Chapter 'Novel actuators', Joint Symposium, 1-3 July 2009, Lille, France. Published on CD section, OS11, Paper 4	Ignat M. Zarnescu G. Cazacu M. Hamciuc E. Hamciuc C.
12	Thermal effects on functional characteristics of the electrical transformers	Electromotion 2009 – Proceedings, EPE Chapter 'Electric Drives', Joint Symposium, 1-3 July 2009, Lille, France. Published on CD section, DS1, 'Design and analysis of electromagnetic devices', Paper 9	Pislaru –Danescu L. Morega Alex. M. Nouras F. Stoica V.
13	Polyimide – polydimethylsiloxane copolymer films containing pyrite ash powder with potential applications in CO ₂ detection	Frontiers in polymer, Symposium Celebrating the 50 th Anniversary of the Journal Polymer, Mainz, Germany, 7-9 Jun. 2009 – accepted abstract as poster	Telipan G. Pislaru-Danescu L. Zarnescu G. Hamciuc E. Cazacu M.
14	Theoretical and experimental aspects on the bionanoactuation of the magnetic bacterium	Invited paper at „Workshop on trends in nanoscience: theory, experiment, technology”, Abstracts, August 23-30, 2009, Sibiu, Romania, pp.16	Ignat M.
15	A micromagnetic circuit with electromagnetic applications	1 st International Workshop „Innovation and evolution by R&D – SMEs strategic partnership”, Bucharest, Romania, September 10 th -12 th , 2009, Abstracts book	Ignat M. Puflea I. Chiriță I. Cătănescu A. L. Stoica V.
16	The Moisture Microactuation of Collagen	1 st International Workshop „Innovation and evolution by R&D – SMEs strategic partnership”, Bucharest, Romania, September 10 th -12 th , 2009, Abstracts book	Ignat M. Cătănescu A. L. Gârjoabă L.
17	The design aspects on the magnetostrictiv actuators	1 st International Workshop „Innovation and evolution by R&D – SMEs strategic partnership”, Bucharest, Romania, September 10 th -12 th , 2009, Abstracts book	Cătănescu Alex. L. Puflea I. Ignat M. Vintilă A.

No.	Title of scientific papers	International Conference	Authors
18	Experimental aspects about a magnetostrictiv actuator for mechanical vibrations	1 st International Workshop „Innovation and evolution by R&D – SMEs strategic partnership”, Bucharest, Romania, September 10 th -12 th , 2009, Abstracts book	Cătănescu Alex. L. Puflea I. Ignat M. Vintilă A.
19	Signal conditioning of CO ₂ detector based on CeO ₂ -Nb ₂ O ₅ mixed semiconductor oxides	1 st International Workshop „Innovation and Evolution by R&D –SMEs Strategic Partnership , Bucharest, Romania, 10-12 Sept. 2009	Pislaru-Danescu L. Telipan G.
20	Gas-sensing properties of 1-D ZnO obtained by hydrothermal process	Romanian Conference on Advanced Materials ROCAM 2009, 25-28 Aug. 2009, Brasov, Romania	Telipan G. Pislaru-Danescu L. Marinescu V. Prioteasa P. Zarnescu G.
21	Nanoparticles of ferrofluid Fe ₃ O ₄ synthesized by coprecipitation method used in microactuation process	Romanian Conference on Advanced Materials, ROCAM, 25-28 Aug. 2009, Brasov	Pislaru-Danescu L. Telipan G.
22	Wind farm investment dimension analysis	2 nd edition of International Conference “Performance in ecology in a competent economy”, Volume II, pg. 246- 252, 12-13 November 2009, Bucharest	Hender C.
23	FePt Thin Films Obtained by PVD	1 st International Workshop “Innovation and Evolution by R&D - SMEs Strategic Partnerships”, Bucharest, Romania, Sept. 10-12, 2009	Enescu E. Lungu P. Patroi D. Neagu D. Bratulescu A. Zarnescu G.
24	Oxidation anodique de l'acide phenylacetique sur des electrodes modifiees	International Conference “Journées d'Electrochimie”, XIV-ème édition, Journées d'Electrochimie 2009, Sinaia, ISBN 978-973-53-0092 -0, page 64	Hristea G.
25	Trends and Research Perspectives for Developing Hydrogen Storage Materials at INCIE ICPE-CA	The 3-rd European & International Conference on Application, Integration, Control, Modeling, Testing, and Intelligent Control and Intelligent Modeling, of the Fuel Cells, Electrolyses and Hydrogen Applications, and also regarding Renewable & Hydrogen, Hydrogen based Energy Storage and theirs Economic / Environment Consequences: eHYDROGENIA, September, 2009, Bucharest, ROMANIA, oral presentation	Lucaci M. Hristea G. Lungu P. Enescu E. Leonat L. Tsakiris V.
26	Surface Activation of a Carbon Xerogel	1 st International Workshop “Innovation and Evolution by R&D - SMEs Strategic Partnership, Bucharest, 2009, book of abstracts, p. 71	Hristea G. Leonat L. Stefanescu C.
27	Carbon Xerogels as Electrodes for Organic Electro-synthesis. Anodic Oxidation of Phenyl-Acetic Acid	1 st International Workshop “Innovation and Evolution by R&D - SMEs Strategic Partnership, Bucharest, 2009, book of abstracts, p. 73	Hristea G. Stoichescu F.

No.	Title of scientific papers	International Conference	Authors
28	Capacitance Control of Carbon Xerogels	1 st International Workshop "Innovation and Evolution by R&D - SMEs Strategic Partnership, Bucharest, 2009, book of abstracts, p. 72	Hristea G. Leonat L. Iordoc M.
29	Study of the electromagnetic shields made from the composites materials	The 6 th International Workshop of Electromagnetic Compatibility, CEM 2009, 12-14 Nov., Constanta	Balan I. Morari C. Neamtu J. Pintea J. Chitanu E. Patroi A. E.
30	A FEM Model for an anechoic chamber	The 6 th International Workshop of Electromagnetic Compatibility, CEM 2009, 12-14 Nov., Constanta	Paltanea Ghe. Paltanea V. Patroi E. Pintea J.
31	MgF ₂ Mn detector for measurement of penetrating electromagnetic radiation	The 6 th International Workshop of Electromagnetic Compatibility, CEM 2009, 12-14 Nov., Constanta	Jipa S. Zaharescu T. Kappel W. Mantsch A. Samoilescu G. Setnescu T. Pintea J.
32	Influence of the electromagnetic waves on the biologic environment	The 6 th International Workshop of Electromagnetic Compatibility, CEM 2009, 12-14 Nov., Constanta	Pintea J. Morari C. Balan I.
33	The influence of Cr addition on the magnetic properties of NiFe-basis nanocrystalline alloys	4th International Conference on Powder Metallurgy RoPM 2009, 8-11 July, Craiova	Enescu E. Lungu P. Sbarcea G. Patroi E. Pintea J. Bratulescu A.
34	Electrical characterization of PZT ceramics using impedance analyzer method	4th International Conference on Powder Metallurgy RoPM 2009, 8-11 July, Craiova	Pintea J.
35	Carbon Fiber Based Monoliths	1 st International Workshop "Innovation and Evolution by R&D-SMEs Strategic Partnership, Bucharest, Romania, September 10-12, 2009	Banciu C. Bara A. Vasilescu-Mirea R. Patroi D. Sbarcea G. Pintea J.
36	Electrophysical properties in PZT type Ceramic	1 st International Workshop "Innovation and Evolution by R&D-SMEs Strategic Partnership, Bucharest, Romania, September 10-12, 2009	Pintea J.
37	Fe and Co Alloyed NiAl Powders for Sensors Application	International Conference of Materials Science and Engineering, Bramat 2009, Brasov, Romania	Lucaci M. Pintea J. Tsakiris V. Orban R.L.
38	Particle accelerators dipole superferic magnet design and realization	The 15th International Conference „Progress in Cryogenics and Isotopes Separation”	Dobrin I. Puflea I. Stancu N. Zamfir S.

No.	Title of scientific papers	International Conference	Authors
39	Carbon sorbent for heavy metal recovery from aqueous solutions	1 st International Workshop "Innovation and Evolution by R&D- SMEs Strategic Partnership", Bucharest, Romania, September 10-12, 2009	Ion I. Barca F. Banciu C. Bara A. Caramitu A. Stancu N. Mateescu C.
40	Fractal model for carbon composite materials for EMIS application	6 th International Workshop of Electromagnetic Compatibility CEM 2009, 12 - 14 Nov 2009, Naval Academy, Constanța, Romania	Ion I. Mitu C. M. Barca F. Banciu C. Bara A. Rimbu G. Caramitu A. Stancu N. Kovalev Y. Székely N.
41	Application in synchrotron micro generator for hydro-electrical conversion based on high energy permanents NdFeB alloy	1 st International Workshop "Innovation and Evolution by R&D- SMEs Strategic Partnership", Bucharest, Romania, September 10-12, 2009	Stancu N. Mihaiescu G.M. Nicolai S. Ion I. Mitrea S.
42	Monitoring of carbon monoxide in ambient air in accordance with EU requirements	The International Symposium "The Environment and Industry" Bucharest, Romania, 28 - 30 October 2009, Volume No. 1, page 373-378, ISSN 1843-5831	Mateescu C. Alec G. Zamfir S.
43	Increasing the efficiency of biogas equipment by improvement of methanogen potential of vegetal biomass	Symposium „Impact of Acquis communitarians on environment equipment and technologies” – ACQUISTEM, 26-28-August 2009, Agigea, Romania, Section 3, paper no. 2	Mateescu C. Constantinescu I.
44	Research on improving the anaerobic biodegradability of lignocelluloses materials for biogas production	First International Workshop IERD 2009, 10-12 September 2009, Bucharest, Romania	Mateescu C. Lungu M. Gavriliu S. Ion I.
45	Isolation and analysis of lignin from corn residuals for biomass bio-digestibility studies	International Symposium "Chemical priorities for a sustainable development – PRIOCHEM, 5th Edition", 29-30 October 2009, Sinaia, Romania	Mateescu C. Ion I. Lungu M.
46	The influence of homogenous magnetic fields on the biogas producing microorganisms	Workshop of Electromagnetic Compatibility - CEM 2009, 12-14 November, Constanta, Romania	Mateescu C. Stancu N.
47	Composite powders of Ag-TiO ₂ type for antibacterial treatments of some textiles having medical applications	Proceedings of International Conference Tex Teh II, 7 – 8.05.2009, Bucharest, Romania, p. 119 – 124, ISBN 978-973-1716-46-6	Gavriliu S. Lungu M. Enescu E. Gavriliu L. Groza C.
48	Nanocomposite Powders for Antimicrobial Applications	Book of Abstracts, 1 st International Workshop "Innovation and Evolution by R&D - SMEs Strategic Partnership", IERD - 2009, Sept. 10 – 12, 2009, Bucharest, Romania, p. 63	Gavriliu S. Lungu M. Enescu E. Faur M. Buruntea N. Panzaru C.

No.	Title of scientific papers	International Conference	Authors
49	Biodegradable composite with application in the automotive industry	Symposium „Impact of Acquis communitarians on environment equipment and technologies” – ACQUISTEM, 26-28-August 2009, Agigea - Section 2, paper no. 6	Caramitu A.R. Ion I. Sbarcea G. Mitrea S. Buruntia N. Groza C. Budrugeac P. Avadanei L. Cotescu S.
50	Biodegradable composite with application in the automotive industry	1 st International Workshop “Innovation and Evolution by R&D- SMEs Strategic Partnership, Bucharest, Romania, September 10-12, 2009	Caramitu A. Ion I. Mitrea S. Hodorogea S. Sbarcea G. Buruntea N. Groza C. Budrugeac P. Avadanei L.
51	Damage of polyethylene used in system of public utilities due to environmental factors - A közműhálózatokban használt polietilén rongálódásai a környezeti tényezők hatására (Degradările sub acțiunea factorilor de mediu a elementelor din polietilenă aferente rețelelor de distribuție a utilităților urbane)	VEKOR, 21-23 April, Balatonfured, Hungary, 2009, CD, paper 6	Lingvay I. Lingvay C. Groza C.
52	About the degradation mechanism of underground power cables	10 th International Conference on Engineering of Modern Electric Systems, EMES'09, Oradea, Romania, May 27-29, 2009, CD, paper 1.13	Lingvay I. Groza C. Csuzi I. Lingvay C. Ciogescu O.
53	Study about polymeric cables jackets degradations due to fungi's (WP 10)	EUROCORR 2009 The European Corrosion Congress, 6 - 10 September 2009, Nice, France, SS 1-O- 7938	Groza C. Sbârcea G. Lingvay C. Marinescu V. Lingvay I.
54	Study about the degradation of polyethylene from gas installations (WP 19)	EUROCORR 2009 The European Corrosion Congress, 6 - 10 September 2009, Nice, France, SS 1-O- 7939	Lingvay I. Groza C. Budrugeac P. Vaireanu D.-I. Lingvay C.
55	Study of Microbiological Degradations in the External Polymeric Layer of Power Cables	The 28 th Annual Conference „Corrosion Challenges In Industry”, EGYCORR 2009, 14-17 December 2009, Ras Sudr, Egypt, CD, paper 10	Lingvay C. Csuzi I. Marinescu V. Groza C. Lingvay I.
56	Studies concerning the effect of scale and corrosion inhibitors on natural environment	The 28 th Annual Conference „Corrosion Challenges In Industry”, EGYCORR 2009, 14-17 December 2009, Ras Sudr, Egypt. CD– paper 23	Lingvay I. Groza C. Văireanu D.-I. Lingvay C. Cojocar A.

No.	Title of scientific papers	International Conference	Authors
57	Waste management of electrical equipment for sustainable development	Conference with international participation NATURA-ECON 2009 „Actual issues of environment, interdependence of factors influencing biotechnology, industrial and economic”, 28 May 2009, Sfântu Gheorghe, Romania, page 202-211 ISBN 978-973-610-907-2	Alecu G. Mateescu C. Gavriliu S.
58	Workplace carbon monoxide assessment for reduction of occupational exposure	Conference with international participation NATURA-ECON 2009 „Actual issues of environment, interdependence of factors influencing biotechnology, industrial and economic”, 28 May 2009, Sfântu Gheorghe, Romania, page 73-80, ISBN 978-973-610-907-2	Mateescu C. Alecu G.
59	Research in hydrodynamics for biogas generation	Conference with international participation NATURA-ECON 2009 „Actual issues of environment, interdependence of factors influencing biotechnology, industrial and economic”, 28 May 2009, Sfântu Gheorghe, Romania, page 67-72, ISBN 978-973-610-907-2	Băran Ghe. Băbuțanu C. Mateescu C.
60	Thermal stability of parchments by MHT: a reliable method for grading deterioration of archival funds	TECHNART 2009-Non-destructive and Microanalytical Techniques in Art and Cultural Heritage, Athens, 27 - 30 April 2009	Badea E. Miu L. Budrugeac P. Saczuki M. Della Gatta G.
61	Designing Coordination Polymers of Different Dimensionalities Using Heterobinuclear Nodes	The 6th Romania/Korea Joint Workshop: Molecular Science and Engineering, 15-16 September 2009, Conference Hall of Romanian Academy Bucharest, Romania	Branzea D. G. Guerra A. Madalan A. M. Maxim C. Sorace L. Caneschi A. Andruh M.
62	Nanosilver application for collagen based materials treatment	Oral presentation at 30th Congress of the International Union of Leather Technologies & Chemists Societies, Oct. 11-14, 2009, Beijing, China	Gaidau C. Petica A. Trandafir V. Ciobanu C. Martinescu T.
63	Leathers And Furs With Advanced Properties For Medical Use Items	Proceedings of International Conference Tex Teh II, 7 – 8.05.2009, Bucharest, Romania, p. 105 – 109, ISBN 978-973-1716-46-6C	Gaidau C. Petica A. Dragomir T. Ciobanu C. Martinescu T.
64	Silver colloidal solution for products with antimicrobial activity	1st International Workshop „Innovation and Evolution by R&D – SMEs Strategic Partnership, Bucharest, Romania, September, 10-12, 2009, Book of abstracts, pag.85	Lungu M. Petica A. Gavriliu S. Enescu E. Faur M. Gaidau C.

No.	Title of scientific papers	International Conference	Authors
65	Environmentally Friendly Technologies for Metals Surface Treatment - Tin and Nickel Electrodeposition from Choline Chloride Based Ionic Liquids	1st International Workshop „ Innovation and Evolution by R&D – SMEs Strategic Partnership, Bucharest, Romania, September, 10-12, 2009, Book of abstracts, page 90	Petica A. Florea A. Prioteasa P. Anicai L.
66	Electrodeposition of Nickel-Molybdenum Alloys from Molybdate Contained Watts Bath	Poster at 1st International Workshop „ Innovation and Evolution by R&D – SMEs Strategic Partnership, Bucharest, Romania, September, 10-12, 2009, Book of abstracts, page 93	Prioteasa P. Golgovici F. Anicai L. Visan T.
67	Synthesis and Corrosion Characterization of Electrodeposited Ni-Mo Alloys Obtained from Aqueous Solution	poster at 16 th Romanian International Conference on Chemistry and Chemical Engineering, September 9 – 12, 2009, Sinaia – Romania	Prioteasa P. Anicai L. Golgovici F. Visan T.
68	Shape memory materials made by powder metallurgy	4th International Conference on Powder Metallurgy, RoPM 2009, Craiova, Romania, July 8-11, 2009, Book of Abstracts, p 56, ISBN 978-973-53-0097-5	Lucaci M. Orban R. L. Valeanu M. Tsakiris V. Cîrstea D. C. Leonat L.
69	The influence factors on the mechanical performances of aluminum metallic nanocomposites	4th International Conference on Powder Metallurgy, RoPM 2009, Craiova, Romania, July 8-11, 2009, Book of Abstracts, p 107, ISBN 978-973-53-0097-5	Tsakiris V. Lucaci M. Alec G. Bogdan Fl. M.
70	Characterization of diffusion welded joints between titanium and permendur type alloy using different interlayer	3rd International Conference INNOVATIVE TECHNOLOGIES FOR ADVANCED MATERIALS, 11 -12.06.2009, page 148-151 (CD), Timișoara, ISSN 1844-4938	Tsakiris V. Lucaci M. Sbârcea G. Marinescu V.
71	The thermomechanical modeling for shape memory alloys	4th International Conference on Powder Metallurgy, RoPM 2009, Craiova, Romania, July 8-11, 2009, Book of Abstracts, p 117, ISBN 978-973-53-0097-5	Cîrstea D. C. Lucaci M. Raducanu D.
72	SHS processing of NiTi-Nb smart alloys	4th International Conference on Powder Metallurgy, RoPM 2009, Craiova, Romania, July 8-11, 2009, Book of Abstracts, p 136, ISBN 978-973-53-0097-5	Orban R.L. Lucaci M. Salomie D. Jumătate N. Btabdusan L.
73	Mechano-synthesis of nanocrystalline FeTi-Al-Ni intermetallic alloy for hydrogen storage	4th International Conference on Powder Metallurgy, RoPM 2009, Craiova, Romania, July 8-11, 2009, Book of Abstracts, p 137, ISBN 978-973-53-0097-5	Orban R.L. Lucaci M. Jumătate N. Salomie D.
74	NiTi-Nb smart alloys processing from elemental powders	Powder Metallurgy European Congress, October 12-14, 2009, vol. 2, Euro PM Congress Proceedings, p 205 -210	Orban R. L. Lucaci M. Jumătate N. Salomie D. Orban M.
75	Shape memory NiTiCu materials used in actuation systems	International Scientific Conference, EE&AE 2009, October 1-3, Rousse, Bulgaria, p. 383- 387, ISSN 1311-9974	Lucaci M. Tsakiris V. Valeanu M.

No.	Title of scientific papers	International Conference	Authors
76	Trends and the research perspectives for developing hydrogen storage materials at INC DIE ICPE-CA Bucharest	3 rd European Conference eHydrogenia H2_Fuel_Cells_Millennium_Convergence_2009, Bucharest, September 21-22, 2009, ISBN 13- 978-973-1704-15-9	Lucaci M. Hristea G. Lungu P. Enescu E. Leonat L. Tsakiris V.
77	Trends and the research perspectives for developing hydrogen storage materials at INC DIE ICPE-CA	1st International Workshop“ Innovation and Evolution by R&D-SMEs Strategic Partnership, September 10th – 12th, 2009, Book of Abstracts, p. 31	Lucaci M.
78	Decreasing of plateau pressure of LaNi ₅ hydrogen storage materials by adding of third elements as substitute for Ni	1st International Workshop“ Innovation and Evolution by R&D-SMEs Strategic Partnership, September 10th – 12th, 2009, Book of Abstracts, p. 62	Enescu E. Almasan V. Lucaci M. Stancu N.
79	Crystallization vs. anorphization in Mg base hydrogen storage materials	1st International Workshop“ Innovation and Evolution by R&D-SMEs Strategic Partnership, Book of Abstracts, p. 83	Lucaci M. Biris Al. Sbarcea B. Tsakiris V. Leonat L.
80	Characterization of hydrogen storage materials by porosity measurements	1st International Workshop“ Innovation and Evolution by R&D-SMEs Strategic Partnership, September 10th – 12th, 2009, Book of Abstracts, p. 82	Leonat L. Enescu E. Lungu P.
81	Influence of the mechanical alloying time on the shape memory properties of NiTiCu alloy	1st International Workshop“ Innovation and Evolution by R&D-SMEs Strategic Partnership, September 10th – 12th, 2009, Book of Abstracts, p. 84	Lucaci M. Valeanu M. Tsakiris V. Cîrstea D. C. Leonat L.
82	Al-Mg alloy with thixotropic microstructure	1st International Workshop“ Innovation and Evolution by R&D-SMEs Strategic Partnership, September 10th – 12th, 2009, Book of Abstracts, p. 86	Lungu M. Binchiciu H. Nistor P. Gavriliu S. Lucaci M. Leonat L. Tsakiris V. Sbarcea G. Patroi D. Marinescu V.
83	Effect of Al ₂ O ₃ nanometric reinforcement on the mechanical properties of aluminum matrix composites	1st International Workshop“ Innovation and Evolution by R&D-SMEs Strategic Partnership, September 10th – 12th, 2009, Book of Abstracts, p. 99	Tsakiris V. Lucaci M. Sbarcea G. Patroi D.
84	Physical Characterization of Mg-based Alloys for Hydrogen Storage	The 3-rd European & int. Conf. “eHydrogenia”, Academia Romana, Bucharest, 21-22 Sept. 2009	Leonat L. Enescu E. Lungu P.
85	Diffusion Bonding of Some Dissimilar Metals	4th International Conference WELDING IN MARITIME ENGINEERING, 13-16.05.2009, Croatia, p. 271-280, ISBN 978-953-7518-01-1	Tsakiris V. Lucaci M. Alec G. Kappel W.

No.	Title of scientific papers	International Conference	Authors
86	Considerations about an informatics system for the real time analysis of risk factors on the environment	4 th International Conference WELDING IN MARITIME ENGINEERING, 13-16.05.2009, Croatia, p. 241-248, ISBN 978-953-7518-01-1	Alecu G. Tsakiris V. Voinea A.
87	Chemical activation of mesocarbon microbeads	1st International Workshop "Innovation and Evolution by R&D-SMEs Strategic Partnership, September 10th - 12th, 2009, Book of Abstracts, p. 48	Banciu C. Bara A. Patroi D. Sbarcea G. Leonat L.
88	Surface activation of a carbon xerogel	1st International Workshop "Innovation and Evolution by R&D-SMEs Strategic Partnership, September 10th - 12th, 2009, Book of Abstracts, p. 71	Hristea G. Leonat L. Iordoc M.
89	Ecological solutions for power switching apparatus	Proceedings of EUROCON 2009, International IEEE Conference, Saint Petersburg, Russia, May 18 - 23, 2009, p. 637-642, ISBN 978-1-4244-3967-6, IEEE Catalog No. CSP 09EUR-CDR	Nitu S. Pavelescu D. Anghelita P. Lungu M. Gavriliu S.
90	Antimicrobial Applications of Silver Nanoparticles	Book of Abstracts, 1 st International Workshop "Innovation and Evolution by R&D - SMEs Strategic Partnership", IERD - 2009, Sept. 10 - 12, 2009, Bucharest, Romania, p. 22	Gavriliu S. Lungu M.
91	Aspects of corrosion in FePt-based melt spun amorphous alloy	International Workshop on Structural and Mechanical properties of Metallic Glasses, IWGM 09, Barcelona, 17-19 June 2009	Crisan O. Enescu E. Lungu P. Iordoc M. Crisan A. D.
92	FePt Thin Films obtained by PVD	International workshop "Innovation and Evolution by R&D - SMEs Strategic Partnership", Bucharest, 10 -12 Sept. 2009, Book of Abstracts p. 61	Enescu E. Lungu P. Patroi D. Neagu D. Bratulescu A. Zarnescu G.
93	Manufacturing of Mumetal Nanocrystalline Alloys	International workshop "Innovation and Evolution by R&D - SMEs Strategic Partnership", Bucharest, 10 -12 Sept. 2009, Book of Abstracts p. 60	Enescu E. Lungu P. Patroi E. Bratulescu A.
94	Preparation and characterization of the nanocomposites based on RE ₂ TM ₁₄ B/alpha-Fe	4 th International Conference on Powder Metallurgy, 8-11 July 2009, Craiova, Romania	Codescu M. M. Kappel W. Pătroi E. A. Manta E. Pătroi D. Hodorogea S.
95	Recovering of the useful elements from the pyrite ashes	4 th International Conference on Powder Metallurgy, 8-11 July 2009, Craiova, Romania	Pătroi E. A. Kappel W. Codescu M. M. Manta E.

No.	Title of scientific papers	International Conference	Authors
96	New materials, recovered by ashes wastes, with potential applications for electromagnetic shielding	4 th International Conference on Powder Metallurgy, 8-11 July 2009, Craiova, Romania	Kappel W. Pătroi E. A. Manta E. Codescu M. M. Morari C. Balan I. Lungu P. Iordache I.
97	Composite materials with cellulose matrix	1 st International Workshop "Innovation and Evolution by R&D - SMEs Strategic Partnership", Bucharest, 10-12 September 2009	Codescu M. M. Zapodeanu I. Manta E. Patroi E. A. Nechita P. Midoni V.
98	Thermo-Sensitive Magnetic Properties in the Alloy System Ni-Cr-Fe	1 st International Workshop "Innovation and Evolution by R&D - SMEs Strategic Partnership", Bucharest, 10-12 September 2009	Codescu M. M. Palii L. Iorga A. Patroi E.A. Manta E.
99	Glass-Coated Microwires for Modern Applications	1 st International Workshop "Innovation and Evolution by R&D - SMEs Strategic Partnership", Bucharest, 10-12 September 2009	Kappel W. Erdei R. Patroi E. Codescu M. M. Manta E. Iorga A. Radulescu F.
100	Ferromagnetic Behavior of Mn Ions in Ni-Fe Alloy	1 st International Workshop "Innovation and Evolution by R&D - SMEs Strategic Partnership", Bucharest, 10-12 September 2009	Palii L. M. Codescu M. M. Iorga A. Radulescu F.
101	Manufacturing of Mu-Metal Nanocrystalline Alloys	1 st International Workshop "INNOVATION AND EVOLUTION BY R&D - SMEs STRATEGIC PARTNERSHIP" Bucharest, 10-12 September 2009	Enescu E. Lungu P. Patroi E. Bratulescu A.
102	Structural Study for Carbon Composite for EMIS Application	1 st International Workshop "INNOVATION AND EVOLUTION BY R&D - SMEs STRATEGIC PARTNERSHIP" Bucharest, 10-12 September 2009	Ion I. Mitu C. M. Barca F. Banciu C. Bara A. Rimbu G. Caramitu A. R. Stancu N. Kovalev Y. Székely N.
103	Carbonic Sorbent for Heavy Metal Recovery from Aqueous Solutions	1 st International Workshop "INNOVATION AND EVOLUTION BY R&D - SMEs STRATEGIC PARTNERSHIP" Bucharest, 10-12 September 2009	Ion I. Barca F. Banciu C. Bara A. Caramitu A. R. Stancu N. Mateescu C.
104	Applications in Synchronal Micro Generators for Hydro - Electrical Conversion Based on High Energy Permanent Magnets - NdFeB Alloys	1 st International Workshop "INNOVATION AND EVOLUTION BY R&D - SMEs STRATEGIC PARTNERSHIP" Bucharest, 10-12 September 2009	Stancu N. Mihaiescu G. M. Nicolai S.

No.	Title of scientific papers	International Conference	Authors
105	Use of Hydrogen on the Processing of the High Energy Permanent Magnets	The 3 rd European & International Conference on Application, Integration, Control, Modeling, Testing and Intelligent Control and Intelligent Modeling of the Fuel Cells, Electrolyses and Hydrogen Applications and also regarding Renewable & Hydrogen, Hydrogen based Energy Storage and theirs Economic/Environment Consequences: e-Hydrogenia [®] H ₂ -Fuel-Cells-Millennium-Convergence, Bucharest, 21-22 September 2009	Codescu M. M. Kappel W. Stancu N.
106	Magnetic And Structural Properties of Terfenol Thin Films	International Conference on Materials Science & Engineering BRAMAT 26 – 28 February 2009, Brasov, Romania, International Conference on Materials Science & Engineering, BRAMAT 2009, Brasov, 26-28 February 2009	Patroi D. Codescu M. M. Bojin D. Patroi E. A. Miculescu F. Sbarcea G.
107	Magnetic and structural properties of Tb-Dy-Fe thin films	Romanian Conference on Advanced Materials, ROCAM 2009, 25-28 Aug.2009, Braşov, Romanian Conference on Advanced Materials, ROCAM 2009, Brasov, 25-28 August 2009	Patroi D. Codescu M. M. Bojin D. Patroi E. A. Sbarcea G.
108	Composites materials produced by INCDIE ICPE-CA, with applications as electromagnetic shields	International Symposium „Environment and industry” SIMI 2009, Bucharest, 28 – 30 October 2009	Kappel W. Codescu M. M. Patroi E. A. Iordache I. Manta E. Negoita M. Radulescu F. E. Bara A. Banciu C. Morari C. Iorga A.
109	The bio-electromagnetic compatibility laboratory of INCDIE ICPE-CA Bucharest	International Symposium „Environment and industry” SIMI 2009, Bucharest, 28 – 30 October 2009	Pintea J. Morari C. Patroi E. A.
110	Recycling of the pyrite ashes from the dumps of former sulphuric acid production factories	International Symposium „Environment and industry” SIMI 2009, Bucharest, 28 – 30 October 2009	Kappel W. Codescu M. M. Patroi E. A. Manta E. Pintea J. Morari C.
111	Magnetic And Structural Properties Of Terfenol Thin Films	International Conference On Materials Science & Engineering BRAMAT 26 – 28 February 2009, Brasov, Romania	Patroi D. Codescu M.-M. Bojin D. Patroi E.-A. Miculescu F. Sbarcea G.
112	Magnetic and structural properties of Tb-Dy-Fe thin films	Romanian Conference on Advanced Materials, ROCAM 2009, 25-28 Aug.2009, Brasov	Patroi D. Codescu M.-M. Bojin D. Patroi E.-A. Sbarcea G.

No.	Title of scientific papers	International Conference	Authors
113	Total Antioxidant Determination of Some Plant Extracts, Wines and Fruit Juices by FI Chemiluminescence Spectrometry Using Luminol and Co(III) Catalyst in the Presence of a Chelating Agent	Flow Analysis XI, Septembrie 14 – 18, Pollensa, Mallorca, Spain (2009)	Danet A. F. Popa C. V. Zaharescu T. Jipa S.
114	The Radioprotective Ability of Rosemary Extract	1 st International Workshop “Innovation and Evolution by R&D – SMEs Strategic Partnership”, Bucharest, Romania, September 10 – 12 (2009)	Maris D. A. Maris M. Jipa S. Zaharescu T. Tanase E. Maris M.
115	The Anti-inflammatory and Bioprotective Action of Natural Antioxidants	1 st International Workshop “Innovation and Evolution by R&D – SMEs Strategic Partnership”, Bucharest, Romania, September 10 – 12 (2009)	Maris M. Maris D. A. Jipa S. Zaharescu T. Maris M.
116	Radiation Degradation of Polyethylene/Poss Formulations	1 st International Workshop “Innovation and Evolution by R&D – SMEs Strategic Partnership”, Bucharest, Romania, September 10 – 12 (2009)	Zaharescu T. Pielikowski C. Jipa S.
117	Influence of Diamond-like Carbon coating on the corrosion resistance of the NITINOL shape memory alloy	Proceedings of the 13 th European Conference on Applications of Surface and Interface Analysis, ECASIA'09, Antalya - Turkey, October 18-23, 2009	Branzoi I.V. Iordoc M. Branzoi F. Vasilescu-Mirea R. Sbarcea G.
118	Aspects concerning aeration using environmental friendly turbines	4th International Conference on ENERGY and ENVIRONMENT, CIEM, Bucharest, Romania, 12 - 14 November 2009	Bunea F. Oprina G. Ciocan G.D. Mândrea L.
119	Cavitation damage at Francis turbine runners	4th International Conference on ENERGY and ENVIRONMENT, CIEM, Bucharest, Romania, 12 - 14 November 2009	Băran G. Tilea C. Oprina G. Bunea F.
120	Aspects concerning the quality of aeration for environmental friendly turbines	Approved for IAHR 2010	Bunea F. Pincovchi I. Oprina G. Dragomirescu A. Ciocan G.D.
121	Biogas Generation. Aspects Concerning Anaerobic Digesters Hydrodynamics	Proceedings of the 6 th International Conference Management of Technological Changes, September 3 rd – 5 th , 2009 Alexandroupoulos, Greece, vol. 2, p. 13-16, ISBN 978-960-89832-8-1	Băbuţanu C.A. Mateescu C.
122	Issues concerning generation biogas technologies	Proceedings of the 6 th International Conference Management of Technological Changes, September 3 rd – 5 th , 2009 Alexandroupoulos, Greece, vol. 1, p. 659-662, ISBN 978-960-89932-7-4	Mândrea L. Băran G. Băbuţanu C.A.
123	Kábelek korrózióvédelme (Protectia anticorozivă a cablurilor)	Magyar Energia Szimpózium (MESZ), Budapest, 2009. március 26, CD, paper 16	Lingvay I.
124	Egy gázrobbanás tanulságai (Învăţămintele desprinse în urma unei explozii de gaze)	VEKOR, 21-23 April, Balatonfüred, Hungary, 2009, CD, paper 4	Lingvay I.

No.	Title of scientific papers	International Conference	Authors
125	Contribution to develop a modern technical solution for increase of maintenance and reliability of underground power lines by corrosion control of the underground power cables	10 th International Conference on Engineering of Modern Electric Systems, EMES'09, Oradea, Romania, May 27-29, 2009, CD, paper 3.5	Lingvay I. Lingvay C. Csuzi I.
126	Carbon Steel Corrosion Inhibition by Plant Extract Based Green Inhibitors	Journées d'Electrochimie 2009, JE09, Sinaia, Roumanie, 6 ÷ 10 juillet 2009, ISBN 978-973-53-0092-0, 9-P-03, p.301	Cojocaru A. Maior I. Lingvay I. Lingvay C. Căprărescu S. Văireanu D.-I.
127	Evaluation of inhibitive properties of environmentally friendly plant extracts using polarization curves	Corrosion and Scale Inhibition (WP 1), EUROCORR 2009 The European Corrosion Congress, 6 - 10 September 2009, Nice, France, SS 1-O-7932	Lingvay I. Văireanu D.I. Cojocaru A. Pârvu L. Maior I. Niță S. Lingvay C.
128	Determination of EIS characteristics of environmentally friendly plant extracts used as corrosion inhibitors and anti-scale additives	Corrosion and Scale Inhibition (WP 1), EUROCORR 2009, The European Corrosion Congress, 6 - 10 September 2009, Nice, France, SS 1-P-7933	Lingvay I. Văireanu D.I. Cojocaru A. Niță S. Maior I. Pârvu L.
129	Protection of underground pipelines against alternative stray currents, (WP 16)	EUROCORR 2009 The European Corrosion Congress, 6 - 10 September 2009, Nice, France, SS 1-O- 7936	Lingvay I. Văireanu D.-I. Lingvay C. Csuzi I.
130	Studies concerning the degradation of reinforced concrete structures due to D.C. and A.C. stray currents (WP 11)	EUROCORR 2009 The European Corrosion Congress, 6 - 10 September 2009, Nice, France, SS 1-O- 8045	Lingvay C. Cojocaru A. Văireanu D.-I. Lingvay I. Vișan T.
131	Inhibition of Copper Corrosion by Environmentally Friendly Plant Extracts	Proc. of the 16th Romanian International Conference on Chemistry and Chemical Engineering, Sinaia, 9-12 September 2009, Ed. Printech, ISBN 978-606-521-349-4, pp. S.III.30-S.III.37	Cojocaru A. Maior I. Lingvay I. Lingvay C. Văireanu D.- I. Caprarescu S.
132	A vízkőképződés és a korrózió megelőzése növényi kivonatokból készült inhibitorokka - Environmentally Friendly Plant Extracts for control of scalling and corrosion	VEKOR, Oct. 6-7, Balatonfüred, Hungary, 2009, CD, paper 12	Lingvay I. Lingvay C. Văireanu D. I.
133	Az egyenáramú vontatású városi közszállítás energiafogyasztása, The energy Consumption of D.C. Electrical Powered Urban Transportation EMT	International Conference on Energetic-Electrical Engineering and Computer Science – X ENELKO + XIX Szám Oct 2009, ISSN 1842-4546, Târgu Mureș, October 8-11, 2009, pp. 105-109	Lingvay I. Csuzi I.

No.	Title of scientific papers	International Conference	Authors
134	Modeling and Simulation of the Discontinuities in cable Screens and Connectors	CEM 2009, 12-14 November 2009, Constanța, Romania, paper 16	Micu D. D. Lingvay C. Simion E. Lingvay I. Dărăbant L. Șteț D. Ceclan A. Czumbil L. Crețu M.
135	Low Frequency Electromagnetic Fields Generated by the Supply System of Trams	CEM 2009, 12-14 November 2009, Constanța, Romania, paper 23	Csuzi I. Felea I. Lingvay I. S.-E. Silaghi
136	A korróziót és vízkőképződést gátló inhibitorok hatásai a természetre - Study about the impact of corrosion inhibitors and anti-scale additives to environment	EME – Természettudományok Konferencia – Kolozsvár, 2009, november 21-én	Lingvay I.
137	The Antiscalent Effect of Some Plant Extracts with Inhibitor Properties	The 28 th Annual Conference „Corrosion Challenges In Industry”, EGYCORR 2009, 14-17 December 2009, Ras Sudr, Egypt, CD, paper 11	Văireanu D.-I. Maior I. Cojocaru A. Lingvay I. Lingvay C. Căprărescu S.
138	Considerations Regarding the Use of Environmentally Friendly Plant Extracts for Copper Corrosion Inhibition	The 28 th Annual Conference „Corrosion Challenges In Industry”, EGYCORR 2009, 14-17 December 2009, Ras Sudr, Egypt, CD, paper 12	Văireanu D.-I. Cojocaru A. Lingvay I. Maior I. Lingvay C. Căprărescu S.
139	Intelligent active diagnosis of degradation state of difficult to inspect built structures aggressed by environmental corrosion (1) premises, models, tools	The 28 th Annual Conference „Corrosion Challenges In Industry”, EGYCORR 2009, 14-17 December 2009, Ras Sudr, Egypt. CD – paper 17	Isoc D. Lingvay I. Lingvay C.
140	Intelligent active diagnosis of degradation state of difficult to inspect built structures aggressed by environmental corrosion (2) case study: diagnosis of railway bridges	The 28 th Annual Conference „Corrosion Challenges In Industry”, EGYCORR 2009, 14-17 December 2009, Ras Sudr, Egypt., CD – paper 18	Isoc D. Lingvay I. Lingvay C.
141	Ageing Assessment of Insulation Systems by Absorption/Resorption Currents	Proceedings of World Academy of Science, Engineering and Technology WCSET, ISSN 2070-3740, Vol. 37, January 28-30, Dubai, pp. 699 – 705, 2009	Notingher P. V. Busoi S. Dumitran L. M. Stancu C. Tanasescu G. Balescu E.

No.	Title of scientific papers	International Conference	Authors
142	Electric field determination in water treed samples using the thermal step method	Journal of International Scientific Publication: Materials, Methods&Technologies, 3-7 June 2009, Vol. 3, Part. 1, ISSN 1313-2539, published online at http://www.science-journals.eu , pp.51 – 62, 2009	Stancu C. Notingher P. V. Notingher jr P. Plopeanu M.
143	Computation of Electric Field Corresponding to Space Charge in Water-Treed Power Cable Insulation	Published on CD-ROM, ID 111, ISBN: 978-2-84832-115-8, September 10-12, Arras, France, 2009	Stancu C. Notingher P. V. Notingher jr P. Plopeanu M.
144	Fuel Cells for the Stationary Applications	The 1st Workshop with international participation "Innovation and Evolution by R&D - SMEs Strategic Partnership" 10 – 12 September 2009, Bucharest	Rimbu G. A. Borbath I. Boros T. Iordache I. Teisanu A.
145	Polymer nanocomposites as advanced materials	Fourth International Conference on Computational Methods and Experiments in Materials Characterization, 17 - 19 June 2009, New Forest, UK	Dinca I. Bara A. Banciu C. Stefan A. Stan A. Gaman S. Manoliu V. Patroi D. Marinescu V.
146	Study of CNT Influence on Mesophase Sphere Morphology	The Workshop with International Participation "Innovation and Evolution by R&D - SMEs Strategic Partnership", 10 – 12 September 2009, Bucharest	Bara A. Banciu C. Patroi D. Sbarcea G. Ion I.
147	CNT Reinforced Nanocomposites for Mechanical Applications	The Workshop with International Participation "Innovation and Evolution by R&D - SMEs Strategic Partnership", 10 – 12 September 2009, Bucharest	Bara A. Banciu C. Patroi D. Sbarcea G. Dinca I. Stan A.
148	Study of inorganic mass of soil of Rosia and Schitu Golesti coal	1 st International Workshop "Innovation and Evolution by R&D - SMEs Strategic Partnership, Bucharest, Romania, September 10-12, 2009	Chiriac J. Ion I. Barca F.
149	Structural study of carbon composite materials for EMI applications	1 st International Workshop "Innovation and Evolution by R&D - SMEs Strategic Partnership, Bucharest, Romania, September 10-12, 2009	Ion I. Mitu C.M. Barca F. Banciu C. Bara A. Rimbu G. Caramitru A. Stancu N. Kovalev Yu. Szekely N.
150	Research on improvement the anaerobic biodegradability of lignocelluloses materials for biogas production	1 st International Workshop "Innovation and Evolution by R&D - SMEs Strategic Partnership, Bucharest, Romania, September 10-12, 2009	Mateescu C. Lungu M. Gavrilu S. Ion I.

No.	Title of scientific papers	International Conference	Authors
151	Tunnel Magneto-Resistance Effect and Giant Hall Effect of Some Magnetic Thin film Multilayer	IEEE Nano Conference 2009, Genoa-Italia	Neamtu J. Volmer M.
152	Shielding properties for composite materials	BRAMAT International Conference on Materials Science & Engineering 26 – 28 February 2009, Brasov, Romania, Transylvania University of Brasov	Neamtu J. Balan I. Morari C. Pintea J. Patroi E.A. Iordache I. Malaeru T. Georgescu G.
153	Excimer laser micro-machining optimization by using beam homogenizers based optical system	Micro- to Nano-Photonics II - ROMOPTO 2009, 31 August – 3 September, Sibiu	Sava V. Ilie C. Popa M. Stoica M. Udrea M.
154	Magnetically and thermal analyses of an 4kW superconducting electrical motor	The 15 th ICIT Conference with international participation „Progress in Cryogenics and Isotopes Separation”, 28-30 October, 2009 – Calimanesti-Caciulata	Morega A. Dobrin I. Popescu M.
155	New types of ceramic anode materials for IT – SOFC	The 3 rd European & International Conference, H ₂ Fuel Cells Millennium Convergence, Bucharest, Romania, September 21-22, 2009, ISBN- ISBN-10:973-1704-15-9, ISBN-13:973-1704-15-9	Șeitan Cr. Velciu G. Bogdan F.
156	Synthesis, characterization and the solubility of -TCP powders with Mg and Zn based dopants	11 th Annual YUCOMAT 2009 Conference, August 31 st – September 4 th , 2009, Herceg Novi, Montenegro	Târdei Ch. Crăciunescu O. Balan M. Stoleriu S. Trușcă R. Vasile E.

7.5 Members in editorial boards of some ISI quoted journals (or included in the international database) and in international editorial boards

7.5.1. EXPERT REVIEWERS IN ISI QUOTED JOURNALS

No.	Journal	Expert reviewers
1	Journal of Thermal Analysis and Calorimetry	Budrugaec Petru
2	Polymer Degradation and Stability	Budrugaec Petru
3	Thermochimica Acta	Budrugaec Petru
4	International Journal of Chemical Kinetics	Budrugaec Petru
5	Revue Roumaine de Chimie	Budrugaec Petru
6	Solid State Sciences	Budrugaec Petru
7	Chemical Papers	Budrugaec Petru
8	Metalurgical and Materials Transaction B	Budrugaec Petru
9	Materials Chemistry Physics	Budrugaec Petru
10	Chemical Engineering Journal	Budrugaec Petru
11	Journal of Applied Polymer Science	Budrugaec Petru

No.	Journal	Expert reviewers
12	The Journal of Physical Chemistry	Budrugeac Petru
13	International Journal of Thermophysics	Budrugeac Petru
14	Journal of Inorganic and Organometallic Polymers and Material	Budrugeac Petru
15	Structural Chemistry	Budrugeac Petru
16	Reaction Kinetics and Catalysis Letters	Budrugeac Petru
17	Industrial & Engineering Chemistry Research	Budrugeac Petru
18	Romanian Reports in Physics	Neamtu Jenica
19	Elsevier Editorial System for Surfaces and Coating Technology	Neamtu Jenica
20	Journal of Applied Polymer Science, USA	Zaharescu Traian
21	Journal of Physical Chemistry/Chemical Edition, USA	Zaharescu Traian
22	Nukleonica, Polonia	Zaharescu Traian
23	Materiale Plastice, Romania	Zaharescu Traian
24	Revista de Chimie, Romania	Zaharescu Traian
25	Polymer Bulletin, Germany	Traian Zaharescu
26	e-Polymers, Germany	Traian Zaharescu
27	Journal of Science and Arts	Zaharescu Traian
28	Scientific Bulletin of the Electrical Engineering Faculty	Zaharescu Traian
29	Journal of Applied Polymer Science, USA	Setnescu Radu
30	Journal of Applied Polymer Science, USA	Setnescu Tanta
31	Revista de Chimie (Bucharest)	Jipa Silviu
32	Journal of Science and Arts	Kappel Wilhelm
33	Scientific Bulletin of the Electrical Engineering Faculty	Kappel Wilhelm
34	Journal of Materials Science	Kappel Wilhelm
35	Optical Advanced Materials – RC	Kappel Wilhelm
36	Journal of Science and Engineering: Corrosion	Kappel Wilhelm
37	Revue Roumanie de Science Technique	Kappel Wilhelm
38	Optical Advanced Materials – RC	Stamatin Ion
39	Journal of Applied Electrochemistry	Iordoc Mihai
40	Journal of Chemical Engineering and Materials Science	Iordoc Mihai
41	IEEE Sensors	Ignat Mircea
42	Chemical Letters	Hristea Gabriela
43	Journal of Thermal Analysis and Calorimetry	Hristea Gabriela
44	Biochemical Engineering Journal	Hristea Gabriela
45	International Journal of Powder Metallurgy/APMI, USA	Radu Orban
46	Powder Metallurgy Progress/IMRSAS Cosice, Slovacia	Radu Orban
47	Process Safety and Environmental Protection, Official Journal of the European Federation of Chemical Engineering	Gimi A. Rimbu
48	Hidrotehnica	Gheorghe Baran
49	Optical Advanced Materials – RC	Ion Stamatin

7.5.2. MEMBERS IN EDITORIAL BOARDS OF ISI QUOTED JOURNALS

No.	Journal	Member name
1	Journal of Thermal Analysis and Calorimetry	Budrugeac Petru
2	Chemical Papers	Budrugeac Petru
3	Revista de Chimie, Romania	Zaharescu Traian
4	Revista de Chimie (Bucharest)	Jipa Silviu
5	Optical Advanced Materials – RC	Kappel Wilhelm
6	Optical Advanced Materials – RC	Ion Stamatin
7	Korrozios Figyelo (Ungaria)	Iosif Lingvay

7.6. Members in editorial boards of some national journals

No.	Journal	Member name
1	Revue Roumaine des Chimie	Jipa Silviu
2	Journal of Science and Arts	Jipa Silviu
3	Journal of Science and Arts	Kappel Wilhelm
4	Journal of Science and Arts	Radu Setnescu
5	Scientific Bulletin of the Electrical Engineering Faculty	Jipa Silviu
6	EEA - Electrotehnic, Electronic, Automatizări (Romania)	Iosif Lingvay
7	Hidrotehnica	Baran Gheorghe

7.7 International Awards

No	Award	Authority who granted	Authors
1.	Silver Medal at International Inventions Show - Geneva 2009, for invention <i>Electrical machines with permanent magnets in special arrangements</i>	International Inventions Show at Geneva – international jury	Kappel W. Mihaiescu Gh.M. Ilie C. Gavrila H. Vasile I.
2.	Silver Medal at International Inventions Show - Geneva 2009, for invention <i>Advanced ceramic nanocomposite for bone repair and process of obtaining</i>	International Inventions Show at Geneva – international jury	Grigore F. Gavriliu S. Lungu M.
3.	Special Award at International Inventions Show – Bucharest 2009, for invention <i>Double excited electric machine</i>	International Inventions Show at Bucharest – President of the First Institute Inventors and Researchers in I.R. IRAN	Kappel W. Gavrila H. Mihaiescu M. Nicolai S. Ionita V. Marin D. Macamete E.
4.	Gold Medal at International Inventions Show - Bucharest 2009, for inventions <i>Electrical machines with permanent magnets in special arrangements</i>	International Inventions Show at Bucharest – international jury	Kappel W. Mihaiescu Gh.M. Ilie C. Gavrila H. Vasile I.
5.	Gold Medal at International Inventions Show - Bucharest 2009, for inventions <i>Double excited electric machine</i>	International Inventions Show at Bucharest – international jury	Kappel W. Gavrila H. Mihaiescu M. Nicolai S. Ionita V. Marin D. Macamete E.
6.	Gold Medal at International Inventions Show - Bucharest 2009, for inventions <i>Microactuator based on polymers</i>	International Inventions Show at Bucharest – international jury	Ignat M. Zarnescu G. Hamciuc E. Hamciuc C. Cazacu M. Sava I.

No	Award	Authority who granted	Authors
7.	Silver Medal at International Inventions Show - Bucharest 2009, for inventions <i>Advanced ceramic nanocomposite for bone repair and process of obtaining</i>	International Inventions Show at Bucharest – international jury	Grigore F. Gavrilu S. Lungu M.
8.	Silver Medal at International Inventions Show - Bucharest 2009, for inventions <i>Humidity microsensor</i>	International Inventions Show at Bucharest – international jury	Ignat M. Hristea G.
9.	Silver Medal at International Inventions Show - Bucharest 2009, for inventions <i>Xerogel carbonic doped materials for fuel cells with polymeric membrane</i>	International Inventions Show at Bucharest – international jury	Hristea G. Alexandru C.
10.	Bronze Medal at International Inventions Show - Bucharest 2009, for inventions <i>Channel waves for researches</i>	International Inventions Show at Bucharest – international jury	Olaru Gh. Nicolaie S. Ilie C. Samoilescu G. Marin D.
11.	Bronze Medal at International Inventions Show - Bucharest 2009, for inventions <i>Laboratory equipment for determining the hydrodynamic characteristics of bubble diffuser</i>	International Inventions Show at Bucharest – international jury	Bunea F. Oprina G. Baran Gh.
12.	Gold Medal at International Inventions Show - Bruxelles 2009, for inventions <i>Double excited electric machine</i>	International Inventions Show at Bucharest – international jury	Kappel W. Gavrilu H. Mihaiescu M. Nicolaie S. Ionita V. Marin D. Macamete E.
13.	Gold Medal at International Inventions Show - Bruxelles 2009, for inventions <i>Xerogel carbonic doped materials for fuel cells with polymeric membrane</i>	International Inventions Show at Bucharest – international jury	Hristea G. Alexandru C.

7.8 National Awards

No.	Award	Authority who granted	Authors
1.	<i>Diploma of Excellence</i> , participating at Research Show – 2009, awarded to INCDIE ICPE-CA Bucharest	Ministry of Education, Research and Innovations, National Authority for Scientific Research	INCDIE ICPE-CA
2.	<i>Diploma of Excellence</i> , participating at Research Show – 2009, awarded to CTT ICPE-CA Bucharest	Ministry of Education, Research and Innovations, National Authority for Scientific Research	CTT ICPE-CA
3.	<i>Diploma of Excellence</i> , participating at Research Show – 2009, awarded to ITA ECOMAT ICPE-CA Sf. Gheorghe	Ministry of Education, Research and Innovations, National Authority for Scientific Research	ITA ECOMAT ICPE-CA Sf. Gheorghe
4.	Top District 3 awarded to INCDIE ICPE-CA Place I	Bucharest Chamber of Commerce and Industry	INCDIE ICPE-CA
5.	Creativity Trophy awarded by Bucharest Chamber of Commerce and Industry to INCDIE ICPE-CA Place II	Bucharest Chamber of Commerce and Industry	INCDIE ICPE-CA
6.	Top Bucharest awarded to INCDIE ICPE-CA Place IV	Bucharest Chamber of Commerce and Industry	INCDIE ICPE-CA
7.	Award for <i>Best young researcher with significant achievements</i> awarded to Mrs. Grigore Florentina	Ministry of Education, Research and Innovations, National Authority for Scientific Research	Grigore Florentina



8

Measures to increase the prestige and visibility of INCDIE ICPE-CA

Introducing co-operation activities through partnerships	120
International and national fairs and exhibitions at which INCDIE ICPE-CA attended and results	127
Presentation of media activity	130

8. Measures to increase the prestige and visibility of INCDIE ICPE-CA

8.1. Introducing co-operation activities through partnerships:

Development of national and international partnership (with personalities/companies/ professional associations), in order to participate at national and European Programmes.

8.1.1. IN COUNTRY, INCDIE ICPE-CA HAS SIGNED CO-OPERATION AGREEMENTS WITH THE FOLLOWING NATIONAL ENTITIES:

- ✱ National R&D Institute for Industrial Ecology ECOIND Bucharest
- ✱ National R&D Institute for Turbomotors COMOTI Bucharest
- ✱ Polytechnic University of Bucharest
- ✱ University of Oradea
- ✱ Local Autonomous Transport of Oradea
- ✱ Transylvania University of Brasov and INCD IFIN-HH to obtain a heat exchanger to cool power electronic devices
- ✱ Bucharest University
- ✱ VALAHIA University of Targoviste
- ✱ "Babes Bolyai" University of Cluj Napoca
- ✱ Technical University of Cluj Napoca
- ✱ OVIDIUS University of Constanta
- ✱ "Gheorghe Asachi" Technical University of Iasi
- ✱ "Alexandru Ioan Cuza" University of Iasi
- ✱ INCEMC – Timisoara
- ✱ ICPE SA
- ✱ Romanian Electrotechnical Committee
- ✱ Employers' Association of New Sources of Energy SUNE
- ✱ INCSMPS
- ✱ ENERO
- ✱ ASTR
- ✱ AGIR
- ✱ SC Cephohart SA Braila
- ✱ „Mircea cel Batran" Naval Academy of Constanta
- ✱ CERTEH
- ✱ Beia Consult International
- ✱ National R&D Institute for Earth Physics
- ✱ ICMET Craiova
- ✱ INCD ISIM Timisoara
- ✱ INCDTP
- ✱ INCD TIM Cluj-Napoca
- ✱ University of Pitesti
- ✱ INCD IMT Microtechnology
- ✱ National R&D Institute for Biological Sciences
- ✱ Institute of Physical – Chemistry "Ilie Murgulescu"
- ✱ National R&D Institute for Precision Mechanics
- ✱ UPB CEMS
- ✱ I National R&D Institute for Materials Physics
- ✱ INCD INFLPR
- ✱ GEOECOMAR
- ✱ IFIN HH
- ✱ INCD Victor Babes
- ✱ INCDTP ICPI
- ✱ SC MEDAPTECH SRL Bacau
- ✱ UTILNAVOREP
- ✱ SC ICPE ME SA Bucharest
- ✱ SC ICPE ACTEL SA
- ✱ Romanian Academy – Timisoara Branch
- ✱ UPB ECEE

- ✱ UPB CCEPM
- ✱ UPB-CCSIT
- ✱ INCAS
- ✱ SC INCERPLAST SA Bucharest
- ✱ R&D Consulting and Services
- ✱ INTERGIS Group SRL
- ✱ SINTEROM SA Cluj-Napoca
- ✱ Hydro-engineering SA Resita
- ✱ CCS Naval Forces of Constanta
- ✱ Academy of Technical Sciences from Romania
- ✱ SC COMPOZITE SRL Brasov
- ✱ SC ROSEAL SA Odorheiu Secuiesc
- ✱ SUDOTIM AS SRL
- ✱ Inst. Tehnomag
- ✱ Remarul "16 Februarie" Cluj-Napoca
- ✱ SC PSV COMPANY SA
- ✱ Advanced Technologies
- ✱ IPROEB SA Bistrita-Nasaud
- ✱ CNTE Transelectrica SA
- ✱ Oradea Transpot Local RA
- ✱ Eurosystems International Bucharest

8.1.2. ABROAD, INCDIE ICPE-CA HAS SIGNED CO-OPERATION AGREEMENTS WITH THE FOLLOWING INTERNATIONAL ENTITIES:

- ✱ "Angel Kanchev" University of Ruse, Bulgaria
- ✱ Association of Danube Municipalities, Bulgaria
- ✱ NGO ECOLINKS- GSUPROOS of Ruse, Bulgaria
- ✱ Transport Company of Szeged, Hungary
- ✱ Regional Energy Agency, Hungary
- ✱ European Commission
- ✱ CERN, France
- ✱ IUCN DUBNA, Russian Federation
- ✱ Schul Hydraulik GMBH, Germany
- ✱ Universita degli Studi Di Trento, Italy
- ✱ Istituto Nazionale di Ricerca Metrologica - Torino, Italy
- ✱ Université Laval, Québec, Canada - *dr. eng. Gabriel Ciocan*, associated professor
- ✱ ALSTOM Hydro, France
- ✱ Institut de recherche d'Hydro-Québec, Canada - *M.Sc. ing. Sébastien Houde*
- ✱ Papiertechnische Stiftung, Germany
- ✱ Chemont S.A., Belgium
- ✱ Fraunhofer Institute of Chemical Technology, Germany
- ✱ Centre de Recherche Technologique en Chimie, CERTECH, France
- ✱ Microfir Tehnologii Industriale Chisinau, Republic of Moldova
- ✱ NPSP Composieten B.V., Holland
- ✱ University of Bristol, U.K.
- ✱ Research Centre FIAT, Italy
- ✱ Scientific and Engineering Unions in Bulgaria (FNTS), Bulgaria
- ✱ Technical University of Sofia, Bulgaria
- ✱ ENEREA - Észak-Alföldi Regional Energy Agency Nonprofit Llc, Hungary
- ✱ University Debrecen, Hungary
- ✱ University Miskolc, Hungary
- ✱ Steinbeis-Europa-Zentrum, Germany
- ✱ Technology Centre of the Academy of Sciences of the Czech Republic, Czech Republic
- ✱ Hungarian Association of IT Companies, Hungary
- ✱ Lublin Technology Transfer Center of Lublin University of Technology, Poland
- ✱ Jozef Stefan Institute, Slovenia
- ✱ Research Center Juelich, Germany
- ✱ FAIR (Facility for Antiproton and Ion Research)
- ✱ HESR (High Energy Storage Ring)

8.1.3. REGISTRATION OF INCIDIE ICPE-CA IN INTERNATIONAL DATABASES WHICH PROMOTES PARTNERSHIP

BISNET TRANSYLVANIA – Network of Business and Innovation Support for SMEs in Transylvania

8.1.4. REGISTER INCIDIE ICPE-CA AS MEMBER IN RESEARCH NETWORKS / MEMBER IN PROFESSIONAL ASSOCIATION ON NATIONAL / INTERNATIONAL LEVEL:

INCIDIE ICPE-CA represented by its active membership in the European Platforms:

EuMaT – Steering Committee;

H₂&Fuel Cell – Mirror Group

Manufuture (member)

and national:

EuMaT Platform in Romania;

EuMaT National Reflexion Group;

Platform for Hydrogen and Fuel Cell in Romania

Alliance for Hydrogen and Fuel Cell

as well as other professional associations:

Technical Committee ASRO (member):

- CT 19 “Terms, classification, environment testing and standardization of environment aspects for electrical and electronic products and systems” (designated person - Dr. Eng. Georgeta Alecu);
- CT 20 “Magnetic components with ferrite” (designated persons - Dr. Eng. Mirela Codescu and Prof. Dr. Wilhelm Kappel)
- CT 30 “Electromagnetic compatibility” (designated person - Dr. Eng. Georgeta Alecu)
- CT 378, “Micro and nanotechnologies” (designated persons - Dr. Eng. Mircea Ignat and Dr. Eng. Gabriela Hristea)

IEEE Society – USA (members: Enescu Elena, Iosif Lingvay, Bondar Ana Maria, Moisin Ana Maria, Neamtu Jenica, Popovici Iuliu, Tardei Christu, Tanasescu Florin Teodor, Iordache Iulian, Jipa Silviu, Bala Constantin, Patroi Eros-Alexandru, Erdei Remus, Codescu Mirela, Lungu Magdalena, Alecu Georgeta, Velciu Georgeta, Tsakiris Violeta, Lucaci Mariana, Zaharescu Traian, Ignat Mircea, Puflea Ioan, Bara Adela, Pintea Jana, Kappel Wilhelm)

SRMM (Romanian Society of Magnetic Materials) affiliated to **UKMS** (Society of Magnetic Materials from UK)

SRMP (Romanian Society of Powders Metallurgy)

SRMC (Romanian Society of Carbonic Materials)

ARM (Romanian Association of Materials)

Romanian Society of Ceramics

Romanian Society of Physics

Romanian Society of Biomaterials

Romanian Federation of Biomedical Engineering

CER (Romanian Electrotechnical Committee)

ARIES (Romanian Association from Electronics and Software Industry)

CCIB (Bucharest Chamber of Commerce and Industry)

thus contributing to adjustment the Romanian research policy with European research policy.

8.1.5. PARTICIPATION IN EVALUATION COMMITTEES AT NATIONAL AND INTERNATIONAL COMPETITIONS

8.1.6. SCIENTISTS WHICH VISITED OUR INSTITUTE:

1. Dr. Volker Timm, evaluator CE
2. Dr. Stefan Echinger, evaluator CE
3. Prof. dr. Refaat Chaabouni, evaluator CE
4. Prof. dr. Mihaela Albu, evaluator CE
5. Prof. Rudolf Maier, Forschungszentrum Juelich, Germany
6. Prof. Jurgen Dietrich, Forschungszentrum Juelich, Germany
7. Dr. Ulf Bechstedt, Forschungszentrum Juelich, Germany
8. Dr. Raimond Toelle, Forschungszentrum Juelich, Germany
9. Dipl.-Ing. Markus Retzlaff, Forschungszentrum Juelich, Germania
10. Dr. Markus Steck, GSI, Darmstadt, Germany
11. Bjorn Galnander, Uppsala University, Uppsala, Sweden
12. Andreas Jankowiak, Univesitatea Mainz, Germany
13. Slawomir Wronka, Soltan Institute, Ukraine
14. Ph.D. Mahdi Attaran, Pulse Niru Co. Research Center, Iran, info@pulseniru.com
15. Ph.D. Mohsen Abdollahi, Pulse Niru Co. Research Center, Iran, info@pulseniru.com
16. Ph.D. Paolo Bariani, Schaefer-Tec Group of Companies, Italia
17. Eng. François Davin, CSM Instruments SA, Switzerland
18. Eng. Michael Berg, Hysitron Inc., USA
19. Dr. Mike Tucker, Quantachrome UK LTD, United Kingdom, e-mail: mikeqchromeuk@aol.com;
20. Prof. dr. Mieczyslaw Jurczyk, Poznan University of Technology, Institute of Materials Science and Engineering, Sklodowska-Curie 5 Sq., 60-964 Poznan, Poland, e-mail: Mieczyslaw.Jurczyk@put.poznan.pl
21. Prof. dr. Malgorzata Sopicka-Lizer, Silesian University of Technology, Katowice, Poland, e-mail: Malgorzata.Sopicka-Lizer@polsl.pl
22. Prof. dr. Mehmet Türker, Gazi University, Technical Education Faculty, Metallurgy Dept, 06500 Ankara, Turkey, e-mail: mturker@gazi.edu.tr
23. Dr. Michalis Vardavoulias, Materials Engineer, Managing Director and Chief Technology Officer, PyroGenesis SA, Lavrion Ave., 19500 Lavrion, Greece, e-mail: mvardavoulias@pyrogenesis-sa.gr
24. Dipl. Eng. Roland Reissmann, Linseis Messgeräte GmbH, Germany
25. Dr. Josef Mathuni, General Manager R&D, R3T GmbH, Germany
26. Reiner Götzen, microTEC Gesellschaft für Mikrotechnologie mbH, Duisburg, Germany
27. Dr. Grzegorz Sowiski, Warsaw University of Technology, Functional Materials Research Centre, 02-507 Warszawa, ul. Wooska 141, Poland
28. Dr. Emanuel Ionescu, Technische Universität Darmstadt, Institut für Materialwissenschaft, Fachgebiet Disperse Feststoffe, Arbeitsgruppe Polymerkeramik, Petersenstrasse 23, D-64287 Darmstadt, Germany
29. B.Ceki, Laboratory of Nuclear and Plasma Physics, Laboratory of Physical Chemistry, Institute of Nuclear Sciences Vin a, P.O.Box 522, 11001 Belgrade, Serbia
30. Dr. Pedro Mayorga Rubio, ITE - Instituto de Tecnología Eléctrica, Av. Juan de la Cierva, 24, Parque Tecnológico de Valencia, 46980 Paterna (Valencia), Spain
31. Prof. Viacheslav Barsukov, Department of Electrochemical Power Engineering & Chemistry, Kiev National University of Technologies & Design, 2, Nemirovich-Danchenko str., 02011, Kiev, Ukraine
32. Dr. Josef Kallo, German Aerospace Centre, Institute of Technical Thermodynamics, Pfaffenwaldring 38-40, 70569 Stuttgart, Germany
33. Dr. Christine Walsh, SOPRALAB, 55 Avenue de l'Europe, 92400 Courbevoie, France
34. Rebecca Goodall, Tera View, UK

8.1.7. INVITED LECTURES, COURSES AND SEMINARS PRESENTED BY HOSTING SCIENTISTS

- ✿ Prof Rudolf Maier, Forschungszentrum Juelich, Germany, *Status of the HESR project*
- ✿ Dr. Markus Steck, GSI, Germany, *Status of the FAIR project*
- ✿ Dr. Raimond Toelle, Forschungszentrum Juelich, Germany, *Injection Parameters of the FAIR project*
- ✿ Dr. Ulf Bechstedt, Forschungszentrum Juelich, Germany, *Sextupole parameters of the FAIR project*
- ✿ Dipl. Eng. Markus Retzlaff, Forschungszentrum Juelich, Germany, *Power supply parameters and ACU involved in the FAIR project*
- ✿ Steli Loznen, Tel Aviv University, Department of Bioengineering, Israel, *The Challenge of*

- Medical Device: the Risk Management*
 Prof. dr. Mehmet Türker, Gazi University, Technical Education Faculty, Metallurgy Dept, 06500 Ankara, Turkey, e-mail: mturker@gazi.edu.tr, *Production of Ceramics Reinforced Al Foams by Powder Metallurgy Techniques*
- Dr. Emanuel Ionescu, Technische Universität Darmstadt, Institut für Materialwissenschaft, Fachgebiet Disperse Feststoffe, Arbeitsgruppe Polymerkeramik, Petersenstrasse 23, D-64287 Darmstadt, Germany, e-mail: ionescu@materials.tu-darmstadt.de, *Novel Polymer-Derived Ceramic Nanocomposites – Potential Candidates for Environmental Barrier Coatings Applications*
- Bozidar Cekić, Laboratory of Nuclear and Plasma Physics, Laboratory of Physical Chemistry, Institute of Nuclear Sciences Vin a, P.O.Box 522, 11001 Belgrade, Serbia, *Mössbauer Spectroscopy of Laves phase Intermetallic Compounds $HfFe_2$ and $Hf_{0.75}Ta_{0.25}Fe_2$*



- Dr. Mike Tucker, Quantachrome UK LTD, United Kingdom, e-mail: mikeqchromeuk@aol.comUK, *New Developments in the Characterization of Surfaces and Pore Structure using Gas Sorption and Mercury Porosimetry*
- Reiner Goetzen, MicroTec Gesellschaft für Mikrotechnologie mbH, Duisburg, Germany, e-mail: goetzen@microTEC-D.com, *Industrial Parallel Micro Production Without Tools*



- Prof. Mieczyslaw Jurczyk, Poznan University of Technology, Institute of Materials Science and Engineering, Sklodowska-Curie 5 Sq., 60-964 Poznan, Poland, e-mail: mieczyslaw.jurczyk@put.poznan.pl, *Room temperature hydrogen storage by nano-scale Mg-based composites*



- Prof. Mieczyslaw Jurczyk, Poznan University of Technology, Institute of Materials Science and Engineering, Sklodowska-Curie 5 Sq., 60-964 Poznan, Poland, e-mail: mieczyslaw.jurczyk@put.poznan.pl, *Bionanocomposites for medical applications*
- Prof. Mieczyslaw Jurczyk, Poznan University of Technology, Institute of Materials Science and Engineering, Sklodowska-Curie 5 Sq., 60-964 Poznan, Poland, e-mail: mieczyslaw.jurczyk@put.poznan.pl, *Fuel cells for aircraft applications*
- Dr. Pedro Mayorga Rubio, ITE - Instituto de Tecnología Eléctrica, Av. Juan de la Cierva, 24, Parque Tecnológico de Valencia, 46980 Paterna (Valencia), Spain, E-mail: pedro.mayorga@ite.es, *Smartgrids as a Mean of Distributed Energy Resources Integration, ITE Developments*
- Dr. Pedro Mayorga Rubio, ITE - Instituto de Tecnología Eléctrica, Av. Juan de la Cierva, 24, Parque Tecnológico de Valencia, 46980 Paterna (Valencia), Spain, E-mail: pedro.mayorga@ite.es, *Expertise on Energy and our relation with SMEs*
- Prof. Viacheslav Barsukov, Technical University Kiev, Ukraine, *Development of Promised Materials for Electrochemical Power Engineering State of Art and Research Perspectives on Alternative and Renewable Energy Technologies in Ukraine*, Technical University Kiev, Ukraine
- Prof. Viacheslav Barsukov, Kiev National University of Technologies & Design, Department of Electrochemical Power Engineering & Chemistry, 2 Nemirovich-Danchenko str., 02011, Kiev, Ukraine, *Promising electrochemical power sources for stationary and transport application*
- Dr. Josef Kallo, German Aerospace Centre, Institute of Technical Thermodynamics, Pfaffenwaldring 38-40, 70569 Stuttgart, Germany, e-mail: josef.kallo@dlr.de, *Fuel Cells for the Aircraft Applications*
- Dr. Christine Walsh, SOPRALAB, 55 Avenue de l'Europe, 92400 Courbevoie, France, e-mail: alexis.bourgeois@sopra-sa.com, *Ellipsometric porosimetry: fast and non destructive characterization method of porous thin films*
- Prof. dr. Elena Carcadea, ICSI – Ramnicu Valcea, Romania, *National hydrogen and fuel cell research center*
- Florin Ciuprina, University Polytechnic of Bucharest, Romania, *Polymer nanocomposites for electrical engineering applications*
- Eugenia Fagadar-Cosma, Institute of Chemistry Timisoara of Romanian Academy, Timisoara, Romania, *Hybrid nanostructures based on porphyrinic dyes*
- Serghei A. Filatov, Heat and Mass Transfer Institute of National Academy of Sciences, Minsk, Belarus, *Novel fuel cells nanocatalyst synthesis and characterization*
- Serghei A. Filatov, Heat and Mass Transfer Institute of National Academy of Sciences, Minsk, Belarus, *Functional carbon nanotubes coatings for MEMS sensors*

- Prof. dr. Horia Gavrilă, Polytechnic University of Bucharest, Romania, *New approach in magnetic recording: heat assisted magnetic wear application*
- Dr. Stefania Gavrilă, INCDIE ICPE-CA, Bucharest, Romania, *Antimicrobial applications of silver nanoparticles*
- Constanta Ibanescu, "Gheorghe Asachi" Technical University, Iasi, Romania, *Rheology – trends and perspective in materials development*
- Dr. Mircea Ignat, INCDIE ICPE-CA, Bucharest, Romania, *The collagen piezoelectric microactuators*
- Dr. Mircea Ignat, INCDIE ICPE-CA, Bucharest, Romania, *Unconventional motor – generator structure for high speed*
- Dr. Mariana Lucaci, INCDIE ICPE-CA, Bucharest, Romania, *Trends and research perspective for developing hydrogen storage materials at INCDIE ICPE-CA*
- Dan A. Maris, Ovidius University of Constanta, Faculty of Dentistry, Constanta, Romania, *Radioprotective ability of rosemary extract*
- Dan A. Maris, Ovidius University of Constanta, Faculty of Dentistry, Constanta, Romania, *The anti-inflammatory and bioprotective action of natural antioxidants*
- Emanuel Ionescu, Technische Universitat Darmstadt, Institut fur Materialwissenschaft, Darmstadt, Germany, *Novel polymer-derived ceramic nanocomposites – potential candidates for environmental barrier coatings applications*
- Prof. dr. Malgorzata Sopicka-Lizer, Silesian University of Technology, Katowice, Poland, e-mail: Malgorzata.Sopicka-Lizer@polsl.pl, *Nanozirconia ceramics for heavy-duty wear application*
- Prof. dr. Ioan Stamatin, Bucharest University, Faculty of Physics, Bucharest, Romania, *Advances in materials for fuel cells*
- Dr. Michalis Vardavoulias, Materials Engineer, Managing Director and Chief Technology Officer, PyroGenesis SA, Lavrion Ave., 19500 Lavrion, Greece, e-mail: mvardavoulias@pyrogenesis-sa.gr, *Current trends in thermal spray industrial applications*
- Marius Constantin Mirica, INCEMC, Timisoara, Romania, *Technology transfer oriented research within INCEMC Timisoara*
- Prof. dr. Nicolae Olariu, Valahia University of Targoviste, Romania, *Strategies for controlling the grid connected PV systems with storing capacities*
- Ladislau Vekas, Romanian Academy, Branch of Timisoara, Romania, *Magnetic particles in fluid systems: synthesis, properties and some engineering and biomedical applications*
- Dr. Gimi Rimbu, INCDIE ICPE-CA, Bucharest, Romania, *Fuel cells for the stationary applications at INCDIE ICPE-CA*
- Calin Munteanu, Technical University of Cluj-Napoca, Romania, *Risk evaluation of the human exposure to power frequency electromagnetic field in very high voltage substations*
- Dan D. Micu, University Technique Cluj-Napoca, Romania, *Neural network technique for magnetic vector potential evaluation in electromagnetic interference problems*
- Mircea-Ioan Constantinescu, "Mircea cel Batran" Naval Academy, Constanta, Romania, *Simulation of a dispersing perturbation magnetic field produced on ships*
- Dan Cristian Rucinschi, Polytechnic University of Bucharest, Romania, *Unele aspecte privind interferentele electromagnetice intentionale (IEMI)*
- Dr. Grzegorz Sowiski, Warsaw University of Technology, Functional Materials Research Centre, 02-507 Warszawa, ul. Wooska 141, Poland, e-mail: gslow@wp.pl, *Review on aluminum composites reinforced with carbon nanotubes*

8.2. International and national fairs and exhibitions at which INCDIE ICPE-CA attended and results

8.2.1. INTERNATIONAL FAIRS AND EXHIBITIONS

No	International fair / exhibition	Results of INCDIE ICPE-CA
1.	The 37 th International Exhibition of Inventions of Geneva Geneva – Switzerland, April 1 – 5, 2009	Product: - advanced ceramic nanocomposite for bone repair; 2 posters (advanced ceramic nanocomposite for bone repair; electrical machines with permanent magnets in special arrangements).
2.	International Industrial Fair "HANNOVER MESSE 2009" Hanover – Germany, April 20 – 24, 2009	Products: - Synchronous generator with permanent magnets (1.5 kW), for wind and hydraulic conversion; - Ceramic biomaterials based on calcium phosphate; - Microelectromechanic actuator with polymeric membrane; - Hydrogen tank on the basis of magnesium hydrides; - Bioactive products with applications in medicine, biology, electrical engineering, consumer goods; - Device for dynamic balancing with magnetic coupling and lifting for installation of dynamic balancing of the rotors; - Natural antioxidants; - Electroprotection device for metallic structures which are functioning in explosive environments – DES; - Electric decoupling and electroprotection device - DPS 150Z; - Electric decoupling and electroprotection device for medium and high voltage underground power cables - DPC; - Ecological electrical contacts from Ag-SnO ₂ air low voltage switching devices; - Electrical contacts for vacuum switching W-Cu, Cr-Cu; - Electrical contacts for air switching; - Soft magnetic cores from bonded iron; - Heavy alloys; - Microwires from Cu and FeBSi; - Electrical spark quenching chamber CECC 63A; - Ceramic dental crucibles; - Insulating materials from steatic ceramics; - Heating resistors ceramic supports; - Electromagnetic screen 50 Hz – 1 MHz and 800 – 10000 MHz; - Composite materials for electromagnetic shielding; - Electromagnetic radiation absorbing material on ferrosilicium concrete; - electromagnetic / shielding composite based on roasted pyrite; - flexible electromagnetic absorbing material; - flexible thin materials for protection at electromagnetic radiations; - ceramic biomaterials based on calcium phosphates; - plated materials for electrical contacts; - composite materials for storage hydrogen; - NdFeB magnetic materials; - Electrical contacts for air switching (AgNi, AgCdO, AgW, Ag-C); - composite powders from silver nanoparticles laid-down on ZnO and SnO ₂ ; - NiAlB powders; - NdFeB sintered magnetic materials with high magnetic stability; - AlNiCo permanent magnets; 3 roll-up.

No	International fair / exhibition	Results of INCDIE ICPE-CA
3.	China International Nuclear Power Industry Expo 2009 China international exhibition center, Beijing, September 2 – 4, 2009	6 posters (composite materials for electromagnetic shielding; multiple axial magnetic coupling with permanent magnets; metallic components obtained by diffusion bonding technique; sextupole electromagnets for facility for antiproton and ion research; project FP7 – REGPOT – 2008 no. 229906: Developing RTD potential of INCDIE ICPE-CA in the field of hydrogen and fuel cell technologies; all products of the institute)
4.	BIOTECHNICA 2009 H a n o v e r , Germany, October 6 – 8, 2009	Products: Products: - Magnetic nanocomposite, magnetite-saccharide for the diagnosis of malignant tumor; - Magnetic system to anchor dental prosthesis (Ti dental implant with ferromagnetic base; dental magnetic attachment); - Colloidal silver solutions; - Colloidal gold solutions; - Bactericidal nanocomposite materials; - hydrogen with silver nanoparticles; - ceramic dental crucibles; - ceramic dental semi-crucibles; - advanced ceramic nanocomposites for bone repair; - ceramic materials based on phosphates; - natural antioxidants; 2 roll-up Brochure „From idea to application”
5.	58 th edition of International Salon Bruxelles – EUREKA Bruxelles - Belgium, November 19 – 21, 2009	2 posters (doped carbon xerogel material designed for exchange membrane fuel cells; double electric machine excited)



8.2.2. NATIONAL FAIRS AND EXHIBITIONS

National fair / exhibition	Results of INCDIE ICPE-CA
21 edition of Dental International Exhibition DENTA 2009 Bucharest – ROMEXPO, April 23 – 25, 2009	Products: - Magnetic system to anchor dental prosthesis (Ti dental implant with ferromagnetic base; dental magnetic attachment); - ceramic dental crucibles; - ceramic dental semi-crucibles; - ceramic biomaterials. 5 posters
Environmental Exhibition - CCIA Calarasi Calarasi Chamber of Commerce, Industry and Agriculture, June 05, 2009	Products: - Electroprotection device for metallic structures which are functioning in explosive environments – DES; - Electric decoupling and electroprotection device - DPS 150Z; - Electric decoupling and electroprotection device for medium and high voltage underground power cables - DPC; - Ecological sintered electrical contacts from Ag-ZnO and Ag-SnO ₂ ; - Electromagnetic radiation absorbing material on ferrosilicium concrete; - Electromagnetic / shielding composite based on roasted pyrite; - Flexible electromagnetic absorbing material; - Flexible thin materials for protection at electromagnetic radiations; - Composite materials for electromagnetic shielding; - Colloidal silver solutions for antimicrobial applications. 3 posters
XIII edition of International Salon of Inventions, Scientific Research and New Technologies „INVENTIKA-2009” Bucharest, October 28 – 31, 2009	Products: - advanced ceramic nanocomposites for bone repair; - doped carbon xerogel material designed for exchange membrane fuel cells - microactuator based on polymers - humidity microsensors 7 posters



8.3. Presentation of media activity

- press cuttings (interviews)
- participation in debate broadcast / television

APARIȚII ICPE-CA ÎN MASS – MEDIA ANULUI 2009

JANUARY

Promptmedia.ro

- ICPE-CA revitalizes the interest on the effects of natural antioxidants
- Intelligent Romanian jaws

Fabrica de Bani

- Intelligent Romanian jaws

Top Business

- Intelligent Romanian jaws

RADIO ROMANIA CULTURAL

- Interview with Violeta Tsakiris
- Interview with Traian Zaharescu
- Interview with Gimi Rimbu
- Interview with Sergiu Nicolae
- Interview with Traian Zaharescu

FEBRUARY

Promptmedia.ro

- Premiere in tumors diagnosing
- Romanian research recession?
- ICPE-CA: call for partners universities
- Testing and computer diagnosis of buffers

Fabrica de Bani

- Premiere in tumors diagnosing
- Romanian research recession?
- ICPE-CA: call for partners universities
- Testing and computer diagnosis of buffers
- Exceptional equipment – in suspension
- Locomotive research programs
- Carbon materials for biotechnology
- Equipments for brakes tests
- This is the way who leads to ideas, solutions

Top Business

- ICPE-CA requires increasing the budget for research
- Testing and computer diagnosis of buffers
- Two new technologies for SC ROFEP SA Urziceni

- Technology transfer center gives first results
- ICPE-CA demonstrates that research can provide solutions for crisis
- Premiere in tumors diagnosing

Radio Romania Cultural

- Interview with Traian Zaharescu and Silviu Jipa
- Interview with Wilhelm Kappel

MARCH

Promptmedia.ro

- Romanian researchers amaze again
- Examination of rail safety components
- Sensor to identify and monitor landslide
- Intelligent system to optimize power consumption for maintaining an optimum environment within a poultry farm

Fabrica de Bani

- Catalyze the border economy
- Hydrogen storage in ICPE-CA
- Solid metal hydrides storage
- Romanian researchers amaze again
- Future boat
- Examination of rail safety components

Top Business

- Romanian researchers amaze again
- Sensor to identify and monitor landslide
- Intelligent system to optimize power consumption for maintaining an optimum environment within a poultry farm

Radio Romania Cultural

- Interview with Traian Zaharescu
- Interview with Paula Lungu
- Interview with Sergiu Nicolae and Solarium

APRIL

Promptmedia.ro

- Solutions for rejuvenation of underground power cables

Fabrica de Bani

- Wilhelm Kappel is invited at "Competitivitate LIVE!"
- The new ICPE-CA silver
- New technologies at ICPE-CA

Top Business

- The new ICPE-CA silver
- New technologies at ICPE-CA

Radio Romania Cultural

- Interview with Lingvay Iosif

MAY

Top Business

- High technology for small and medium enterprises through ROMNET-MINAFAB

Fabrica de Bani

- High technology for small and medium enterprises through ROMNET-MINAFAB

Curierul National

- High technology for small and medium enterprises through ROMNET-MINAFAB

Ziua

- High technology for small and medium enterprises through ROMNET-MINAFAB

Inobarometru

- The real word of products should replace the real word of actions

JUNE

Market Watch

- "Promit"- the ICPE-CA amplifier for electrical engineering
- Electric power boat made by Romanian researchers

Afacerea

- "Promit"- the ICPE-CA amplifier for electrical engineering

Universul Ingineresc

- "Promit"- the ICPE-CA amplifier for electrical engineering

Promptmedia.ro

- "Promit"- the ICPE-CA amplifier for electrical engineering
- Electric power boat made by Romanian researchers

Top Business

- "Promit"- the ICPE-CA amplifier for electrical engineering
- Electric power boat made by Romanian researchers

Fabrica de Bani

- Houses against electromagnetic radiation
- Electric power boat made by Romanian researchers

Radio Romania Cultural

- Interview with Wilhelm Kappel
- Interview with Gavrilu Stefania
- Interview with Ilie Cristinel

JULY

Top Business

- Romanian couples for dental technique
- New projects were started at ICPE-CA
- Secured with microfiche ferromagnetic elements and field sensors for applications in electronic detection validation
- Innovative microsystems achieved at ICPE-CA
- Open day for institutes at ICPE-CA

Amosnews.ro

- Romanian couples for dental technique

Ziarulstiintelor.eu

- Romanian couples for dental technique

Market Watch

- Secured with microfiche ferromagnetic elements and field sensors for applications in electronic detection validation
- ICPE-CA prepared for an European career
- Innovative microsystems achieved at ICPE-CA

Promptmedia.ro

- Secured with microfiche ferromagnetic elements and field sensors for applications in electronic detection validation
- Electron fascicle hardening
- Coverage of surgical instruments with carbon layers to prevent infections

Europafm.ro

- Open day for institutes at ICPE-CA

Afacerea.ro

- Open day for institutes at ICPE-CA

ANCS.ro

- Open day for institutes at ICPE-CA

Fabrica de Bani

- Open day for institutes at ICPE-CA

Radio Romania Cultural

- Interview with Pinteana Jana

AUGUST

Comunicatemia.ro

- Superconducting materials based on MgB2
- Electrical air conductor with self protection of power lines ice

Ziarulstiintelor.eu

- Superconducting materials based on MgB2

Promptmedia.ro

- ✎ *Electrical air conductor with self protection of power lines ice*
- ✎ *Micro/nano smart functional materials*
- ✎ *Materials with shape memory achieved at ICPE-CA*

Comunicatedepresa.ro

- ✎ *Micro/nano smart functional materials*

SEPTEMBER

Fabrica de Bani

- ✎ *The day of farmer at Valcelele*
- ✎ *Opening Innovation and Evolution in R&D SME Strategic Partnership*

Market Watch

- ✎ *New sources of energy, supported by ICPE-CA innovations*

Comunicatedepresa.ro

- ✎ *Magnetic materials with high performance used in electrical machines constructions*

Comunicatemedi.ro

- ✎ *Magnetic materials with high performance used in electrical machines constructions*

Ecomunicate.ro

- ✎ *Magnetic materials with high performance used in electrical machines constructions*

Radio Romania Cultural

- ✎ *Interview with Stancu Nicolaie*

OCTOBER

Fabrica de Bani

- ✎ *Energetic equipment with fuel cells*
- ✎ *Research - at 2009 Salon*
- ✎ *What does Romanian research offers?*

Comunicatedepresa.ro

- ✎ *Laboratory of bioelectromagnetic compatibility*

Comunicatemedi.ro

- ✎ *Laboratory of bioelectromagnetic compatibility*

Ecomunicate.ro

- ✎ *Laboratory of bioelectromagnetic compatibility*

NOVEMBER

Top Business

- ✎ *New material for determination of oxygen concentration*
- ✎ *Research project of heat flat pipe*

Comunicate de presa.ro

- ✎ *New material for determination of oxygen concentration*

Ecomunicate.ro

- ✎ *New material for determination of oxygen concentration*
- ✎ *Research project of heat flat pipe*

Market Watch

- ✎ *Remarkable participation of ICPE-CA at " Inventika Salon" 2009*
- ✎ *Research project of heat flat pipe*

Comunicatemedi.ro

- ✎ *Research project of heat flat pipe*

Radio Romania Cultural

- ✎ *Interview with Lucaci Mariana*

DECEMBER

Top Business

- ✎ *Coverage technology based on dispersed nanostructured photocatalytic systems with self-cleaning and antimicrobial role for construction applications*

Market Watch

- ✎ *Coverage technology based on dispersed nanostructured photocatalytic systems with self-cleaning and antimicrobial role for construction applications*

Ecomunicate.ro

- ✎ *Coverage technology based on dispersed nanostructured photocatalytic systems with self-cleaning and antimicrobial role for construction applications*

Comunicatemedi.ro

- ✎ *Coverage technology based on dispersed nanostructured photocatalytic systems with self-cleaning and antimicrobial role for construction applications*
- ✎ *Intelligent anti frost cable*

Comunicatedepresa.ro

- ✎ *Coverage technology based on dispersed nanostructured photocatalytic systems with self-cleaning and antimicrobial role for construction applications*

Fabrica de Bani

- ✎ *Intelligent anti frost cable*

Promptmedia.ro

- ✎ *Intelligent anti frost cable*



9

Conclusions

9. Conclusions

The research - development activity within INCDIE ICPE-CA in 2009 was strongly influenced by the effects of the crisis through which the country's economy. The budget of INCDIE ICPE-CA for 2009 was 40% lower than in 2008. But, this drastic reduction of research funding did not lead to a deterioration of the atmosphere, created and developed with effort over time in the institute, but always kept the idea of respect for the assumed "mission of INCDIE ICPE-CA", that is "applied research in national and international electrical engineering for the benefit of companies, public and private, in the overall interests of the whole society".

In this context, we initiated a merger of the existing potential research on directions and activities that directly and immediately respond to the needs of the economy.

Thus, were achieved:

- ✦ Institute involving in three main research directions:
 - advanced materials: functional / multifunctional materials and composites, nanostructured and crystalline;
 - new sources of energy (wind, solar, fuel cells, hydrogen storage): conversion, saving and recovery;
 - technologies and microelectromechanical systems.
- ✦ Enhancing institutional promotion activity by:
 - Participation at TIB (International Technical Fair of Bucharest) 2009, in the Research Salon with an exhibition stand, loaded with many achievements for the economy: one part of finance from the PN I (National Programme I), other part supported by internal funding of our institute.
 - Remarkable technological transfers, some of these made by partners effort:
 - 5 kW PEM fuel cells based co-generation system transferred to ROSEAL – Odorheiu Secuiesc;
 - Generators for wind equipment of 1.5 kW and 3 kW transferred to Electroprecizia - Sacele;
 - wind equipment of 1.5 kW transferred to ROFEP-Urziceni.
 - Press releases: writing (average 3 - 4 articles provided monthly), radio (average one interview monthly)
- ✦ Keeping the entire number of scientists and even strengthening the human infrastructure:
 - 5 researchers enrolled in PhD study in 2009;
 - 5 PhD thesis (out of 58 PhD specializing in physics, chemistry, electrical engineering, metallurgy, mechanics, biology) held in 2009;
 - 5 masters graduated in 2009.
- ✦ Developing infrastructure to achieve the specific objectives of national interest:
 - micromechanical technologies and processing;
 - testing and characterization of advanced materials;
 - electromagnetic compatibility.
- ✦ Accessing other financing funds such as Structural Funds:
 - ongoing PROMIT Project, POS CCE Programme, with funds to ensure the strengthening of R & D infrastructure (equipment, software, device);
 - 3 projects on Romania – Bulgaria Financing Trans-boundary Programme, under evaluation;
 - 5 projects on South-East Europe Financing Programme, under evaluation.

From a social perspective, ICPE-CA became in 2009 more strengthened: ICPE-CA employee is confident in its powers, in the ability to overcome ICPE-CA's weights, is oriented towards solving issues in economy, and find, now, more connections to the social good.

In conclusion, the report highlights the performance of the presented activities, the performance of measures included in the Plan of INCDIE ICPE-CA in 2009.

