

The first international conference
on electrical engineering ICPE-CA

ASMES'2019

Predeal - Romania
20 - 22 November 2019

with support of:



MINISTRY OF RESEARCH AND INNOVATION

Organized by:



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

in collaboration with






ROMANIAN ELECTROTECHNICAL COMMITTEE



ROMANIAN NATIONAL COUNCIL - WORLD ENERGY COUNCIL

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Wednesday

November 20, 2019

12:00 – 16:00 Accommodation CARPATI Hotel. Preliminary information

16:00 – 16:30 Registration of participants, Posters display

16:30 – 17:00 Opening Ceremony – Room A

17:00 – 19:00 Plenary Session, INVITED LECTURES – Room A

19:00 – 20:00 Mini Exhibition

20:00 – 22:00 Welcome Party

Thursday

November 21, 2019

08:15 – 11:00 Plenary Session, INVITED LECTURES – Room A

11:00 – 11:30 Coffee/Tea Break

11:30 – 13:30 Parallel Sessions, INVITED LECTURES & Oral Sessions

INVITED LECTURE, Oral Sessions Topic 4: Advanced materials for electrical engineering – Room A

INVITED LECTURES, Oral Sessions Topic 7: Characterization and measurement methods for electrical engineering materials and products – Room B

Oral Sessions, Topic 1: New and renewable energies and Topic 5: Environmental engineering and management – Room C

13:30 – 14:30 Lunch

14:30 – 15:00 Plenary Session, INVITED LECTURE – Room A

15:00 – 16:00 Poster Session

16:00 – 22:00 Social program, Banquet

Friday

November 22, 2019

08:30 – 10:00 Plenary Session, INVITED LECTURES – Room A

10:00 – 11:00 Parallel Sessions, INVITED LECTURES & Oral Sessions

INVITED LECTURE, Oral Session Topic 2: Conventional energy sources and Topic 4: Advanced materials for electrical engineering – Room A

INVITED LECTURE, Oral Sessions Topic 5: Environmental engineering and management – Room B

INVITED LECTURE, Oral Session Topic 3: Electrical machines and drives and Topic 6: Medical engineering – Room C

11:00 – 11:30 Coffee/Tea Break

11:30 – 13:00 Plenary Session, INVITED LECTURES – Room A

13:00 – 13:30 Presentation BEIA Company

13:30 – 14:00 Closing remarks

14:00 – 15:00 Lunch

15:00 Departure

Wednesday, November 20, 2019

16:30 – 17:00

Opening Ceremony

Room A

Plenary Session

17:00 – 19:00

INVITED LECTURES

PRESIDENTS: Tudor PRISECARU, Mircea BOLOGA

17:00 – 17:30

AN EFFICIENT PROCEDURE FOR SOLVING ELECTROMAGNETIC FIELD PROBLEMS IN NON-LINEAR MEDIA: THE POLARIZATION METHOD

Florea I. HĂNȚILĂ, Mihai MARICARU, George Marian VASILESCU
University Politehnica of Bucharest, ROMANIA

17:30 – 18:00

EMERGING ELECTRO-TECHNOLOGIES, ADVANTAGES AND OPPORTUNITIES

Mircea BOLOGA
Institute of Applied Physics, Chisinau, MOLDOVA

18:00 – 18:30

ELABORATION OF IRRIGATION SYSTEMS INTEGRATED WITH RENEWABLE ENERGY CONVERSION FACILITIES

Ion BOSTAN, Viorel BOSTAN, Valeriu DULGHERU
Technical University of Moldova, Chisinau, MOLDOVA

18:30 – 19:00

ELI-NP – APPLICATIONS FOR INDUSTRIAL RESEARCH

Dan GHIȚĂ
IFIN-HH ELI-NP, Magurele, ROMANIA

19:00 – 20:00 Mini Exhibition

20:00 – 22:00 Welcome Party

Thursday, November 21, 2019

Plenary Session

Room A

08:15 – 11:00

INVITED LECTURES

PRESIDENTS: Florea HĂNȚILĂ, Mihai Octavian POPESCU

08:15 – 08:45

VARRIOT IoT PLATFORM

Valery GHEORGHIEV
Silistra Municipality, BULGARIA

08:45 – 09:15

**EFFECTIVE SHIELDING MEASURES AGAINST COMPROMISING
ELECTROMAGNETIC EMISSIONS**

Mircea POPESCU
The Special Telecommunications Service – STS, Bucharest, ROMANIA

09:15 – 09:45

**DC – AC – DC THE FUTURE OF ELECTRICITY DISTRIBUTION IN THE
RENEWABLE ENERGY ERA**

Andrei MARINESCU
IEEE Life Senior Member, ROMANIA

09:45 – 10:15

**THE INVESTIGATIONS AT THE LABORATORY OF NEUTRON PHYSICS OF THE
JOINT INSTITUTE FOR NUCLEAR RESEARCH**

Sergey KULIKOV
Joint Institute for Nuclear Research, Dubna, RUSSIA

10:15 – 10:45

ELECTROMAGNETIC COMPATIBILITY - ENVIRONMENTAL ISSUE

Mihai Octavian POPESCU, Claudia Laurența POPESCU

University Politehnica of Bucharest, ROMANIA

10:45 – 11:00

THE ROMANIAN WIRELESS POWER TRANSFER NETWORK

Andrei MARINESCU

IEEE Life Senior Member, Consultant, ROMANIA

11:00 – 11:30 Coffee/Tea Break

Session

11:30 – 13:30

INVITED LECTURES and Oral Session

Room A

PRESIDENTS: Detlef BONFERT, Ivan BOBRIKOV

INVITED LECTURE

11:30 – 12:00

SENSING PROPERTIES OF CARBON NANOTUBE BASED THICK FILM LAYERS ON FOILS

D. BONFERT, D. HEMMETZBERGER, I. BOSE

Fraunhofer Research Institution for Microsystems and Solid State Technologies, EMFT, Munich, GERMANY

Oral Session

Topic 4: Advanced materials for electrical engineering

12:00 – 12:15

NICKEL FERRITE POLYMERIC COMPOSITE FOR EMIS APPLICATION

Ioana ION, Alina CARAMITU, Sorina MITREA, Virgil MARINESCU, Delia PĂTROI, Eugen MANTEA, Aristofan TEIȘANU, Jana PINTEA, Cristian MORARI, Cristina BANCIU, Magdalena LUNGU, Violeta TSAKIRIS, Mihai MARIN, Mariana LUCACI

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

12:15 – 12:30

INFLUENCE OF PROCESSING ROUTE ON MICROSTRUCTURE AND PROPERTIES OF $Al_{18.4}FeCrNiCo$ HIGH ENTROPY ALLOYS

Mariana LUCACI¹, Eugeniu VASILE², Magdalena LUNGU¹, Eugen MANTA¹, Alexandru IORGA¹, Nicolae STANCU¹, Virgil MARINESCU¹, Beatrice Gabriela SBARCEA¹

¹National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

²University Politehnica of Bucharest, ROMANIA

12:30 – 12:45

DESIGN AND MODELING OF A SUPERCONDUCTING SOLENOID GENERATING 5T MAGNETIC FIELD

Ion DOBRIN, George DUMITRU, Dan ENACHE, Andrei DOBRIN, Iuliu POPOVICI, Radu PINTEA, George DUMITRU, Ștefania ZAMFIR

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

12:45 – 13:00

RELIABLE TUNGSTEN-COPPER ARCING CONTACTS FOR HIGH VOLTAGE CIRCUIT BREAKER APPLICATIONS

Magdalena Valentina LUNGU¹, Elena ENESCU¹, Delia PĂTROI¹, Sorina MITREA¹, Virgil MARINESCU¹, Mariana Lucaci¹, Violeta TSAKIRIS¹, Ioana ION¹, Nicolae STANCU¹, Alexandra BRĂTULESCU¹, Mihai MARIN¹, Petrișor GODEANU², Constantin MELNIC²

¹National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

²MAIRA MONTAJ SRL, Bucharest, ROMANIA

13:00 – 13:15

SYNTHESIS OF CARBON NANO-MATERIALS BY ELECTRICAL EXPLOSION OF GRAPHITE STICKS

Adela BĂRA, Mihai BĂDIC, Cristian MORARI, Virgil MARINESCU, Delia PĂTROI, Marius LUNGULESCU, Cristina BANCIU

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

13:15 – 13:30

STRUCTURE AND OPTICAL PROPERTIES OF TRANSPARENT CONDUCTING ALUMINUM DOPED ZINC OXIDE THIN FILMS OBTAINED BY CATHODE SPUTTERING

I. IORDACHE¹, A. SOBETKII²

¹National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

²SC MGM STAR CONSTRUCT SRL Bucharest, ROMANIA

Session

11:30 – 13:30

INVITED LECTURES and Oral Session

Room B

PRESIDENTS: Anna Maria FERRETTI, Mircea POPESCU

INVITED LECTURES

11:30 – 12:00

TRANSMISSION ELECTRON MICROSCOPY: A TOOL FOR ADVANCED CHARACTERIZATION OF NANOMATERIALS

Anna Maria FERRETTI

Institute of molecular science and technologies - CNR Milano, ITALY

12:00 – 12:30

THE ELECTROMAGNETIC REFLECTION AND ABSORPTION PROPERTIES OF MATERIALS VS. MACROSCOPIC PARAMETERS ϵ , μ , σ

Mihai BĂDIC, Cristian MORARI

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

Oral Session

Topic 7: Characterization and measurement methods for electrical engineering materials and products

12:30 – 12:45

MEASUREMENT OF OHMIC RESISTANCE IN A HYDROGEN FUEL CELL USING CURRENT INTERRUPT METHOD

Ioana MANTA¹, Florin Alexandru LUNGU¹, Maria Simona RABOACA^{1,2,3}

¹National Research and Development Institute for Cryogenic and Isotopic Technologies-ICSI, Rm. Valcea, ROMANIA

²Faculty of Electrical Engineering, Technical University of Cluj-Napoca, ROMANIA

³Faculty of Electrical Engineering and Computer Science, "Ștefan cel Mare" University of Suceava, ROMANIA

12:45 – 13:00

THE USE OF THERMAL ANALYSIS METHODS FOR PREDICTING THE THERMAL LIFETIME OF AN EPOXY RESIN USED AS ELECTRICAL INSULATOR

Petru BUDRUGEAC, Andrei CUCOȘ, Radu DASCĂLU, Sorina MITREA, Gabriela SBARCEA

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

13:00 – 13:15

FUNCTIONAL CHARACTERIZATION AND DURABILITY EVALUATION OF SOME COMPOSITE MATERIALS WITH TEMPERATURE SELF-REGULATING PROPERTIES

Radu SETNESCU^{1,2}, Eduard-Marius LUNGULESCU², Adela BĂRA², Cristina BANCIU², Alina-Ruxandra Caramitu², Sorina Mitrea², Virgil MARINESCU², Nicoleta NICULA², Nicolae STANCU¹

¹Valahia University of Targoviște, Faculty of Sciences and Arts, Targoviste, ROMANIA

²National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

11:30 – 13:30

Oral Session

Room C

PRESIDENTS: Sergey KULIKOV, Gabriel Dan CIOCAN

Oral Session

Topic 1: New and renewable energies

11:30 – 11:45

LIVING ARCHITECTURE: MICROORGANISMS POWERING THE CITIES

Gimi A. RÎMBU¹, Ioannis IEROPOULOS², John GREENMAN²

¹National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

²Bristol BioEnergy Centre, University of the West of England, Bristol, UK

11:45 – 12:00

COMPLEX INNOVATIVE SYSTEM FOR OBTAINING ENERGY BY SIMULTANEOUSLY USAGE OF RENEWABLE SOURCES

George POTERAȘ, György DEÁK, Cristina SÎRBU, Natalia Simona RAISCHI, Marius Viorel OLTEANU

National Institute for Research and Development in Environmental Protection, Bucharest, ROMANIA

12:00 – 12:15

ANALYSIS OF PHOTOVOLTAIC MODULES (PV) POWER DEGRADATION INSTALLED IN POWER PLANTS IN ROMANIA

Ion MURGESCU, Bogdan-Alexandru ONOSE, Ștefan-Adrian ȘONTEA

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

12:15 – 12:30

OPTIMIZATION MODELLING OF RESIDENTIAL ENERGY SYSTEMS

Maria Simona RABOACA^{1,2,3}, Ioana MANTA¹, Florin Alexandru LUNGU¹, Andreea-Raluca FELSEGHI³

¹ National Research and Development Institute for Cryogenic and Isotopic Technologies-ICSI, Rm. Valcea, ROMANIA

² Faculty of Electrical Engineering, Technical University of Cluj-Napoca, Cluj-Napoca, ROMANIA

³ Faculty of Electrical Engineering and Computer Science, "Ștefan cel Mare" University of Suceava, Suceava, ROMANIA

12:30 – 12:45

CONTROLLING A 2KW PEM FUEL CELL STACK REAL-TIME USING OPAL-RT

Florin Alexandru LUNGU¹, Ioana MANTA¹, Maria Simona RABOACA^{1,2,3}

¹ National Research and Development Institute for Cryogenic and Isotopic Technologies-ICSI, Rm. Valcea, ROMANIA

² Faculty of Electrical Engineering, Technical University of Cluj-Napoca, Cluj-Napoca, ROMANIA

³ Faculty of Electrical Engineering and Computer Science, "Ștefan cel Mare" University of Suceava, Suceava, ROMANIA

Room C

PRESIDENTS: Gabriel Dan CIOCAN, Sergey KULIKOV

Oral Session

Topic 5: Environmental engineering and management

12:45 – 13:00

INFLUENCE OF METEOROLOGICAL PARAMETERS ON POLLUTANTS DISPERSION IN SENSITIVE URBAN AREAS

György DEÁK, Natalia RAISCHI, Cristina SÎRBU, Eduard PANĂ, Ștefan ZAMFIR, Marius RAISCHI, Lucian LUMINĂROIU

National Institute for Research and Development in Environmental Protection, Bucharest, ROMANIA

13:00 – 13:15

MEASUREMENT TECHNIQUE TO STUDY TWO PHASE FLOWS FOR ENVIRONMENTAL APPLICATIONS

Gabriel Dan CIOCAN¹, Florentina BUNEA²

¹Asoc. Prof., Laboratoire de Machines Hydrauliques, Université Laval, Québec, CANADA

²National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

13:30 – 14:30 Lunch

Plenary Session

Room A

14:30 – 15:00

INVITED LECTURE

PRESIDENTS: Valeriu DULGHERU

14:30 – 15:00

ADVANCED MAGNETIC NANOSTRUCTURES. CHALLENGES AND OPPORTUNITIES

N. LUPU, T.-A. ÓVARI, S. CORODEANU, G. ABABEI, G. STOIAN, O.-G. DRAGOȘ-PÎNZARU, C. GHEMEȘ, M. LOSTUN, M. GRIGORAȘ, D.-D. HEREA, H. CHIRIAC

National Institute of Research and Development for Technical Physics, Iași, ROMANIA

15:00 – 16:00

Poster Session

PRESIDENTS: Elena ENESCU, Marius ENĂCHESCU, Dan GHIȚĂ

Topic 1: New and renewable energies

INNOVATIVE MOBILE RES HYBRID SYSTEM FOR IRRIGATION AND FERTIGATION APPLICATION IN ARID CLIMATES, SEMI-DRY AND DRY-SUB-HUMID

Bogdan-Alexandru ONOSE, Ion MURGESCU, Ștefan-Adrian ȘONTEA

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest
ROMANIA

NEW ELECTRONIC STRUCTURES FOR ENERGY STORAGE

Lucian PÎSLARU-DĂNESCU¹, Rareș-Andrei CHIHAIA¹, Laurențiu Constantin LIPAN², Victor STOICA¹

¹ National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

²University POLITEHNICA of Bucharest, Bucharest, ROMANIA

INFLUENCE OF MICROALGAE ON THE ORGANIC MATTER CONVERSION TO RENEWABLE FUEL GAS

Andreea-Daniela DIMA

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

BIOFUELS PROGRESS IN THE NATIONAL RENEWABLES LANDSCAPE: A SWOT ANALYSIS OF THE BIOGAS SECTOR

Carmen MATEESCU

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

Topic 2: Conventional energy sources

DIGITAL IMAGE PROCESSING WITH APPLICATION IN PARTICLE IMAGE VELOCIMETRY

Adrian NEDELICU, Florentina BUNEA

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

TEST BENCH FOR STUDY THE BIPHASIC MIXTURES

Corina Alice BĂBUȚANU, Florentina BUNEA, Adrian NEDELICU

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

Topic 3: Electrical machines and drives

MAXIMIZING THE PERFORMANCE OF MICRO ELECTRIC MACHINES WITH APPLICATIONS IN AERONAUTICS, USING LAST GENERATION SPECIAL MATERIALS

Cristinel ILIE, Mihai MIHĂIESCU, Ionel CHIRIȚĂ, Mihai GUȚU, Marius POPA, Nicolae TĂNASE

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

IMPROVING THE ENERGY CONVERSION EFFICIENCY FOR HYDROKINETIC TURBINES USING MPPT CHARGE CONTROLLER

Rareș-Andrei CHIHAIA, Ionuț VASILE, Ion SBURLAN, Emil TUDOR, Sergiu NICOLAIE, Constantin DUMITRU

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

HYDROGENERATOR SYSTEMS IMPLEMENTED WITHIN COASTAL AND FLOWING WATER COMPLEXES

Dorian MARIN, Ștefan ȘONTEA, Bogdan ONOSE

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

STAND AND PROCEDURE FOR TESTING SMALL SCALE MODELS OF AXIAL HYDRAULIC TURBINES

Teodor Costinel POPESCU, Valentin BARBU, Alexandru HRISTEA

INOE 2000-IHP Bucharest, ROMANIA

HYDROSTATIC TRANSMISSION (HST) FOR LOW POWER WIND TURBINES (LPWT)

Cătălin-Ionaș DUMITRESCU, Teodor Costinel POPESCU, Marian BLEJAN

INOE 2000-IHP Bucharest, ROMANIA

Topic 4: Advanced materials for electrical engineering

STRUCTURAL AND MORPHOLOGICAL INVESTIGATIONS OF THERMAL AGING FOR SLOT INSULATION BASED ON POLYESTER FOR ROTATING MACHINES

**Gabriela TELIPAN¹, Marius LUNGULESCU¹, I.V. POPESCU^{2,3},
Ioana Daniela DULAMA^{3,4}, Bogdan VARATICEANU⁵, Sofia TEODORESCU⁴,
Raluca Maria STIRBESCU⁴**

¹National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest ROMANIA, ²Valahia University of Targoviste, Faculty of Sciences and Arts, Targoviste, ROMANIA, ³Academy of Romanian Scientists, Bucharest, ROMANIA, ⁴Valahia University of Targoviste, Institute of Multidisciplinary Research for Science and Technology, Targoviste, ROMANIA, ⁵ICPE SA, Bucharest, ROMANIA

GATED RESISTORS WITH COPPER PHTHALOCYANINE FILMS

CRISTIAN RAVARIU¹, DAN E. MIHAIESCU², ALINA MOROSAN², GEORGETA ALECU³, DANIELA ISTRATI²

¹University "Politehnica" Bucharest, Department of Electronic Devices Circuits and Architectures, Bucharest, Romania

²University "Politehnica" Bucharest, Department of Organic Chemistry "Costin Nenitescu", Bucharest, Romania

³National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, Romania

MULTIFERROIC MATERIALS AND THEIR POSSIBLE DEVICE APPLICATIONS

Jana PINTEA

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

SOLID STATE DIFFUSION BONDING OF GRAPHITE AND CERAMIC MATERIALS OBTAINED BY SPARK PLASMA SINTERING

Violeta TSAKIRIS, Wilhelm KAPPEL, Georgeta VELCIU, Magdalena LUNGU, Mariana LUCACI, Dorinel TĂLPEANU, Delia PĂTROI, Florentina CLICINSCHI, Gabriela SBARCEA, Virgil MARINESCU, Alina CARAMITU, Ioana ION, Alexandra BRĂTULESCU, Mihai MARIN

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

MAGNETIC AND STRUCTURAL CHARACTERIZATION FOR TWO-PHASE FERROMAGNETIC MICROWIRES

Eugen MANTA¹, Eros Alexandru PĂTROI¹, Vladimir LARIN², Alexandru IORGA¹, Delia PĂTROI¹, Gabriela SBARCEA¹, Valentin MIDONI³

¹National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

²MFTI, Chisinau, MOLDOVA

³MEDAPTEH PLUS CERT, Magurele, ROMANIA

NEW COMPOSITE MATERIAL WITH ELECTROMAGNETIC SHIELDING PROPERTIES

Cristian MORARI, Mihai BĂDIC

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

RARE EARTH METALS DOPED $(1-x)\text{Pb}(\text{Zr}_{1-y}\text{Ti}_y)\text{O}_3 - x\text{Pb}(\text{Mn}_{1/3}\text{Sb}_{2/3})\text{O}_3$ SYSTEM FOR APPLICATIONS IN ELECTRICAL ENGINEERING

Alina Iulia DUMITRU¹, Georgeta VELCIU¹, Jana PINTEA¹, Delia PATROI¹, Virgil MARINESCU¹, Florentina CLICINSCHI¹, Bogdan VARATICEANU²

¹National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

²Institute of Electrotechnical Research – ICPE SA, Bucharest, ROMANIA

THE IMPROVEMENT OF DEGRADATION STRENGTH OF ALKYD RESIN EZ 528 USED IN ROTATING MACHINE

T. ZAHARESCU, A. DUMITRU, E. M. LUNGULESCU, V. E. MARINESCU

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

CHARACTERISATION OF SOFT MAGNETIC GLASS COATED MICROWIRES IN TEMPERATURE AND FREQUENCY

Eros Alexandru PĂTROI, Alexandru LIXANDRU, Alexandru IORGA, Eugen MANTA, Nicolae STANCU, Vlad BREZOIANU

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

ELECTROSPUN CORE-SHELL NANOFIBRES WITH SELF – HEALING FUNCTIONALITIES

Cristina BANCIU¹, Adela BĂRA¹, Virgil MARINESCU¹, Marius LUNGULESCU¹, Radu SETNESCU^{1,2}

¹National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

²Valahia University of Targoviste, Faculty of Sciences and Arts, Department of Sciences and Advanced Technologies, Targoviste, ROMANIA

MECHANICAL PROPERTIES OF CFRP COMPOSITES WITH SELF – HEALING FUNCTIONALITIES

Adela BĂRA¹, Cristina BANCIU¹, Virgil MARINESCU¹, Marius LUNGULESCU¹, Radu SETNESCU^{1,2}, Raluca MAIER³, Sebastian VINTILA³

¹National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

²Valahia University of Targoviste, Faculty of Sciences and Arts, Department of Sciences and Advanced Technologies, Targoviste, ROMANIA

³National Research and Development Institute for Gas Turbines COMOTI, Bucharest, ROMANIA

GRAPHENE-BASED ELECTRODES FOR SUPERCAPACITORS

Adela BĂRA, Cristina BANCIU, Mihai IORDOC, Aristofan TEIȘANU, Virgil MARINESCU, Marius LUNGULESCU, Delia PĂTROI

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

MASS FLOW MONITORING BY DISTRIBUTED FIBER OPTICAL TEMPERATURE SENSING

Alin JDERU^{1,2}, Dionezie BOJIN^{1,2}, Filip VALERIU¹, Gabriel IONESCU¹, Marius ENĂCHESCU², Dominik ZIEGLER¹

¹S.C. NanoPRO START MC S.R.L., Bucharest, ROMANIA

²University POLITEHNICA Bucharest, Bucharest, ROMANIA

IMPLEMENTATION AND OPTIMIZATION OF A BRILLOUIN OPTICAL TIME DOMAIN ANALYSIS PLATFORM

Alin JDERU^{1,2}, Grigore Jan Cristian^{1,3}, Ilie POPA¹, Dionezie BOJIN^{1,2}, Dominik ZIEGLER¹, Marius ENĂCHESCU²

¹S.C. NanoPRO START MC S.R.L., Bucharest, ROMANIA

²University POLITEHNICA Bucharest, Bucharest, ROMANIA

³University of Pitesti, Pitesti, ROMANIA

CHEMICAL SENSING WITH OPTICAL FIBERS

Alin JDERU^{1,2}, Grigore Jan Cristian^{1,3}, Filip Valeriu¹, Gabriel IONESCU¹, Marius ENĂCHESCU², Dominik ZIEGLER¹

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³University of Pitesti, Pitesti, ROMANIA

DISTRIBUTED CALORIMETRIC FLOW MONITORING USING PULSED HEATING

Alin JDERU^{1,2}, Grigore Jan Cristian^{1,3}, Filip VALERIU¹, Gabriel IONESCU¹, Marius ENĂCHESCU², Dominik ZIEGLER¹

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Topic 5: Environmental engineering and management

RIG WALKING SYSTEMS DRILLING EQUIPMENT

Sebastian TUDOR, Georgiana MARIN, Georgeta STOIANOVICI, Cristinel BĂLAN

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

FUMARATE POLYNUCLEAR SYSTEMS WITH ORGANOTIN NODES FOR ENVIRONMENTAL APPLICATIONS

Valentina Andreea ȚOPÎRLAN^{1,2}, Delia-Laura POPESCU²

¹National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

²University of Bucharest, Faculty of Chemistry, Department of Inorganic Chemistry, Bucharest, ROMANIA

ENVIRONMENTAL MANAGEMENT ON RIVERS MONITORING IN BLACK SEA STATES

Georgeta ALECU, Andreea VOINA

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

THE BRAND OF AN ORGANIZATION WITH TRADITION IN RESEARCH AND DEVELOPMENT

Gabriela OBREJA

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

SHIFTING FROM CONSUMER TO PROSUMER IN ROMANIA

Tiberiu Ioan SERBAN, Stefan SONTEA, Ion MURGESCU, Bogdan ONOSE

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

TEST BENCH FOR STUDY THE BIPHASIC MIXTURES

Corina Alice BĂBUȚANU, Florentina BUNEA, Adrian NEDELCU

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

Topic 6: Medical engineering

IMPACT OF THE ELECTROMAGNETIC FIELDS ON PLANT TISSUE

Robert-Francisc DUCU, Nicoleta Oana NICULA, Eduard-Marius LUNGULESCU, Eros Alexandru PĂTROI, Daniel LIPCINSKI

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

SYNTHESIS AND CHARACTERIZATION OF MAGNETIC OXIDE (γ -Fe₂O₃) WITH CONTROLLED SIZE AND SURFACE FOR BIOMEDICAL APPLICATIONS

Teodora MĂLĂERU, Elena ENESCU, Gabriela GEORGESCU, Eros Alexandru PĂTROI, Eugen MANTA, Delia PĂTROI, Beatrice-Gabriela SBARCEA, Virgil MARINESCU

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

IRON OXIDE NANOPARTICLES FOR APPLICATIONS IN NEOPLASTIC DISEASES

Gabriela GEORGESCU, Elena ENESCU, Teodora MĂLĂERU, Eros-Alexandru PĂTROI, Eugen MANTA, Delia PĂTROI, Virgil MARINESCU

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

Topic 7: Characterization and measurement methods for electrical engineering materials and products

DESIGN OF 2D HALL SENSORS MATRIX FOR DIPOLE MAGNETIC FIELD MEASUREMENT SYSTEM

Ion DOBRIN, George DUMITRU, Radu PINTEA, Dan ENACHE, Andrei DOBRIN, Iuliu POPOVICI

National Institute for Research and Development in Electrical Engineering, ICPE-CA, Bucharest, ROMANIA

DESIGN AND MODELING OF A CRYOGENIC SUPPLY SYSTEM WITH LIQUID HELIUM OF A SUPERCONDUCTING SOLENOID

Ion DOBRIN, George DUMITRU, Dan ENACHE, Andrei DOBRIN, Iuliu POPOVICI, Radu PINTEA, George DUMITRU, Ștefania ZAMFIR

National Institute for Research and Development in Electrical Engineering, ICPE-CA, Bucharest, ROMANIA

USE OF COUPLED TG-FTIR TECHNIQUE FOR STUDYING THE THERMAL BEHAVIOUR OF SOME ELECTRO-INSULATING MATERIALS

Andrei CUCOȘ, Petru BUDRUGEAC

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

THERMAL BEHAVIOR OF POLYNUCLEAR COORDINATION COMPOUNDS DERIVED FROM Ph₃SnCl

Radu-Cristian DASCĂLU^{1,2}, Andrei CUCOȘ², Delia-Laura POPESCU¹

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COMPLEMENTARY INVESTIGATION OF MULTIELEMENTAL Fe-BASED METALLIC ALLOYS BY SEM AND XRD TECHNIQUES

Gabriela SBARCEA, Eugen MANTA, Delia PĂTROI, Eros PĂTROI, Virgil MARINESCU

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

STRUCTURAL AND CHEMICAL CHALLENGES TO OVERCOME THE MAGNETIC PROPERTIES OF 2D ALNICO ALLOYS

Delia PĂTROI¹, Eugen MANTA¹, Eros PĂTROI¹, Gabriela SBARCEA¹, Vladimir ZHAKETOV², Mirela-Maria CODESCU¹, Virgil MARINESCU¹, Sorina MITREA¹

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THE INFLUENCE OF THE MICROSPHERE ADDITION ON THE MECHANICAL, THERMAL AND DIELECTRIC CHARACTERISTICS OF MORTARS

Virgil MARINESCU¹, Georgeta VELCIU¹, Adriana MOANTA², Delia PĂTROI¹, Gabriela-Beatrice SBARCEA¹, Gheorghe Ghe. IONIȚĂ³.

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³Valahia University, Targoviste, ROMANIA

OPAL RT TECHNOLOGY USED IN STATIONARY AND MOBILE APPLICATIONS FOR PEMFC

Maria Simona RABOACA^{1,2,3}, Alin CORBU¹

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³Faculty of Electrical Engineering and Computer Science, "Ștefan cel Mare" University of Suceava, Suceava, ROMANIA

ZINC OXIDE/GRAPHENE OXIDE COMPOSITES DESIGNED FOR ENERGY STORAGE APPLICATIONS

Carmen PARASCHIV, Gabriela HRISTEA, Mihai IORDOC, Virgil MARINESCU

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

NANOSTRUCTURED THIN LAYER COPPER/NICKEL OXIDE COMPOSITES ON CARBON NANO WALLS SUBSTRATE FOR SUPERCAPACITOR APPLICATION

Aristofan TEISANU¹, Mihai IORDOC¹, Sorin VIZIREANU², Paula BARBU¹, Adela BARA¹, Delia PATROI¹, Ioana ION¹, Leona NISTOR³

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³National Institute of Materials Physics, Magurele, ROMANIA

16:00 – 22:00 Social program, Banquet

Friday, November 22, 2019

Room A

Plenary Session

8:30 – 10:00

INVITED LECTURES

PRESIDENTS: Andrei MARINESCU, Nicolay MIHAILOV

8:30 – 9:00

SUPERCONDUCTIVITY, VACUUM AND HIGH CURRENT TECHNOLOGIES IN THE NICA PROJECT

Olga KAZINOVA

Joint Institute for Nuclear Research, Dubna, RUSSIA

9:00 – 9:30

PHOTOVOLTAIC ENERGY FOR AGRICULTURAL APPLICATIONS IN THE ROMANIA-BULGARIA CROSS-BORDER AREA

Nicolay MIHAILOV, Boris EVSTATIEV

University of Ruse Angel Kanchev, BULGARIA

9:30 – 10:00

THE ROLE OF PUMPED – STORAGE POWER-PLANTS IN THE ENERGETIC TRANSITION

Gabriel Dan CIOCAN

Asoc. Prof., Laboratoire de Machines Hydrauliques, Université Laval, Québec, CANADA

Session

10:00 – 11:00 ***INVITED LECTURE and Oral Session***

PRESIDENTS: Sergey KULIKOV, Olga KAZINOVA

INVITED LECTURE

10:00 – 10:30

**STUDY OF MATERIALS FOR LI-ION POWER SOURCES IN FRANK
LABORATORY OF NEUTRON PHYSICS**

I.A. BOBRIKOV, M.V. AVDEEV

Frank Laboratory of Neutron Physics, Joint Institute for Nuclear Research, Dubna, RUSSIA

Oral Session

Topic 2: Conventional energy sources

10:30 – 10:45

**NUMERICAL SIMULATION AND EXPERIMENTAL TESTING OF AN ELECTROMAGNET
FOR DIGITAL HYDRAULICS**

N. TĂNASE, I. CHIRIȚĂ, G.M. MIHĂIESCU, C. ILIE, A. NEDELCU, D. LIPCINSKI

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest,
ROMANIA

Topic 4: Advanced materials for electrical engineering

10:45 – 11:00

**THE INFLUENCE OF HEAT TREATMENT ON THE MICROSTRUCTURE AND
MAGNETIC BEHAVIOR OF SmCo_5 + 20% Fe SOFT/HARD MAGNETIC
NANOCOMPOSITES OBTAINED BY MECHANICAL MILLING**

Răzvan HIRIAN¹, Olivier ISNARD², Viorel POP¹

¹Faculty of Physics, Babeş-Bolyai University, Cluj-Napoca, ROMANIA

²Institut Néel, CNRS and Université Grenoble Alpes, Grenoble, Cédex 9, FRANCE

11:00 – 11:30 Coffee/Tea Break

Session

10:00 – 11:00 ***INVITED LECTURES and Oral Session***

PRESIDENTS: Nicolae JULA, George SUCIU

INVITED LECTURE

10:00 – 10:30

NEW INORGANIC STRUCTURES FOR THE STABILIZATION OF POLYMER MATERIALS

Traian ZAHARESCU

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

Oral Session

Topic 5: Environmental engineering and management

10:30 – 10:45

CONCURRENT ENGINEERING AND SEARCH BASED APPLICATIONS FOR 3D BIG DATA

George SUCIU¹, Gabriela IOSIF², Iulian IORDACHE², Romulus CHEVEREȘAN¹, Gabriela BUCUR¹, Ioana PETRE¹

¹BEIA CONSULT INTERNATIONAL, Bucharest, ROMANIA

²National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

10:45 – 11:00

GRAPHENE BASED ELECTROCHEMICAL SENSORS FOR PESTICIDES REZIDUES DETECTION

Gabriela HRISTEA, Andreea ȚOPÎRLAN, Mihai IORDOC, Dragoș OVEZEA, Marius LUNGULESCU, Virgil MARINESCU

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

11:00 – 11:30 Coffee/Tea Break

Session

10:00 – 11:00

INVITED LECTURES and Oral Session

PRESIDENTS: Florin Teodor TĂNĂSESCU, Radu NEGOESCU

INVITED LECTURE

10:00 – 10:30

ELECTRIC DRIVES USED IN ELECTRIC TRACTION

Emil TUDOR

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

Oral Session

Topic 3: Electrical machines and drives

10:30 – 10:45

RETROFITTING AN INTERNAL COMBUSTION ENGINE VEHICLE BY REPLACING IT WITH AN ELECTRIC TRACTION SYSTEM

Emil TUDOR¹, Ionuț VASILE¹, Ion SBURLAN¹, Mihai-Gabriel MATACHE²

¹National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

²INMA, Bucharest, ROMANIA

Topic 6: Medical engineering

10:45 – 11:00

DEVELOPMENT OF ADVANCED NANOCOMPOSITES BASED ON TITANIUM HYDROXYAPATITE BY SPARK PLASMA SINTERING

D. TĂLPEANU, C. ȚÂRDEI, D. PĂTROI, M. LUNGU, V. TSAKIRIS

National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, ROMANIA

11:00 – 11:30 Coffee/Tea Break

Plenary Session

Room A

11:30 – 13:00

INVITED LECTURES

PRESIDENTS: Alexandru MOREGA, Tudor URSU

11:30 – 12:00

GENERAL AND PARTICULAR ASPECTS ON THE SPECIAL ELECTRIC MACHINES WITH TOP PERFORMANCES

Tudor URSU¹, Nicolae JULA², Radu OBREJA¹, Cristian TRENTEA¹

¹Sistem Euroteh Buzau, ROMANIA

²Military Technical Academy Bucharest, ROMANIA

12:00 – 12:30

EXPERT-LIKE SYSTEMS & ARTIFICIAL NEURAL NETWORKS IN DETECTING SYMPATHETIC SUPRA-NORMAL DRIVE TO HEART FROM 24 H HOLTERS

Radu NEGOESCU, Serban DINCĂ-PANAITESCU

Academy of Medical Sciences and National Institute of Public Health, Bucharest, ROMANIA, respectively School of Health Policy and Management, York University, Toronto, CANADA

NB. Authors were formerly with National Institutes of Health, Nat'l Heart, Lung & Blood Inst. (NHLBI), Washington DC, USA, and Institute of Public Health, Bucharest, ROMANIA

12:30 – 13:00

THERMAL THERAPY METHODS

Alexandru M. MOREGA, Mihaela MOREGA

University Politehnica of Bucharest, ROMANIA

13:00 – 13:30

Presentation BEIA Company, ROMANIA

13:30 – 14:00 Closing remarks

14:00 – 15:00 Lunch

15:00 Departure