

# ADOPTING THE INTERNET OF THINGS TECHNOLOGIES IN HEALTH CARE SYSTEMS

\*IULIANA CHIUCHISAN, \*\*HARITON-NICOLAE COSTIN and \*\*\*OANA GEMAN

\*\*"Stefan cel Mare" University of Suceava, Faculty of Electrical Engineering and Computer Science, Suceava, Romania

\*\*"Grigore T. Popa" University of Medicine and Pharmacy, Faculty of Medical Bioengineering, Iasi, Romania

\*\*Institute of Computer Science of Romanian Academy, Iasi Branch, Romania

\*\*\*"Stefan cel Mare" University of Suceava, Human Development and Health Department, Suceava, Romania

**Abstract** — Internet of Things based health care systems play a significant role in Information and Communication Technologies and has contribution in development of medical information systems. The developing of IoT-based health care systems must ensure and increase the safety of patients, the quality of life and other health care activities. The tracking, tracing and monitoring of patients and health care actors activities are challenging research directions. In this paper we propose a general architecture of a health care system for monitoring of patients at risk in smart Intensive Care Units. The system advises and alerts in real time the doctors/medical assistants about the changing of vital parameters or the movement of the patients and also about important changes in environmental parameters, in order to take preventive measures.

**Keywords** — health care system; smart environment; internet of things; Kinect; sensors.

In this paper is proposed the architecture of a health care system for monitoring of patients at risk in smart Intensive Care Units, using the concept of Internet of Things. In order to create a smart environment for Intensive Care Unit (ICU) monitoring of patients at risk we will use the following components:

1. **Intensive Care Unit bedside monitors** that are already used in hospital units to monitor and record multiple physiological parameters of patients;
2. **Microsoft XBOX Kinect** using sensors to monitor the movement of the patients in order to eliminate situations in which the patient has removed from the sensing devices wires or the monitor generated a false alarm; this movement device will act only in cases in which the sensor device itself has not the facility to measure the contact resistance with patient;
3. **Sensor board for monitoring of environmental parameters** such as temperature, humidity, atmospheric pressure and different types of gases.
4. **Telemonitoring of vital signs.** Another useful application of IoT concept is the remote monitoring of human's vital signs, such as blood pressure, electrocardiographic signal, oxygen saturation, body temperature and heart rate. This can be done by means of embedded medical sensors and wireless technology.

All health records and measurements were stored into a computer server and a data base that can be accessed by the doctors/nurses through a user friendly interface. The web-based health monitoring application will analyze and process the data information from all the devices from ICU and informs in (almost) real time the doctors/nurses about the changing of vital parameter or the movement of the patients and also about the important changing in environmental parameters, in order to take preventive measures.

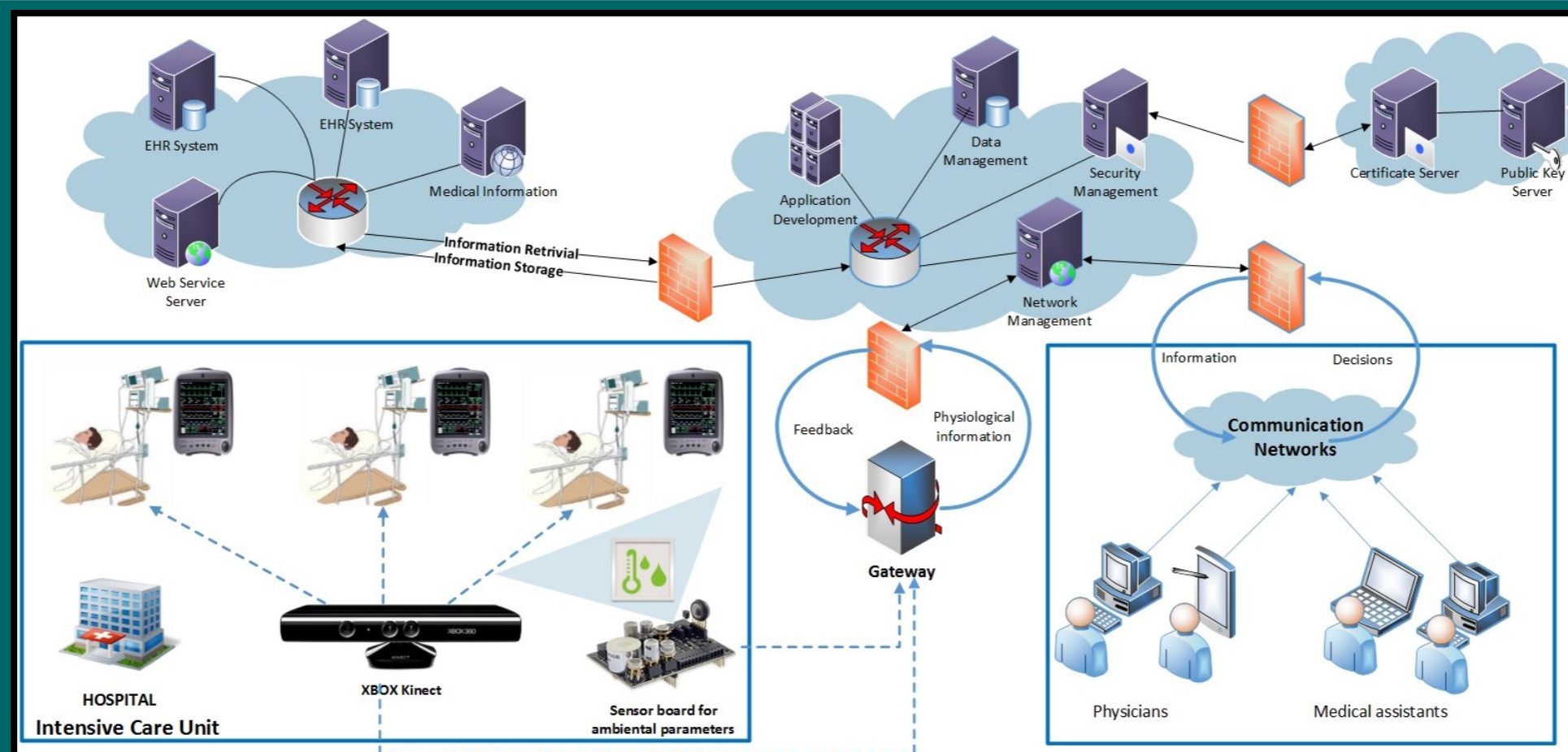


Fig.1. Architecture of the health care system for monitoring of patients at risk in smart Intensive Care Units

## Conclusions and Future Work

Internet of Things applications are pushing the development of platforms for implementing ambient assisted living systems that will offer services in the areas of assistance in daily activities, health monitoring, enhancing rapid access to medical and emergency systems. In present, the patients monitoring in hospital environment are made by medical personnel/assistants/nurses in which case the human error is inevitable. In this paper we propose the architecture of a health care system for monitoring of patients at risk in smart Intensive Care Units (ICU) through the Internet of Things paradigm, using the recent methods and devices such as XBOX Kinect and a set of sensors for monitoring of environmental parameters. The main objective of our system is to enhance medical condition for people who need permanent support or monitoring, to decrease barriers for monitoring important health parameters, to avoid unnecessary health care costs and efforts, and to provide the right medical support at the right time. The authors have achieved system architecture acquiring the hardware parts and configuring the software for XBOX Kinect. The system is in the process of testing and validation. The system is part of a more complex system in development and will be improved by adding new types of sensors (pressure, body weight, etc.).



## CERTIFICATE OF ATTENDANCE

This is to certify that:

**Iuliana Chiuchișan**

has presented a scientific contribution at  
the 8<sup>th</sup> INTERNATIONAL CONFERENCE AND EXPOSITION ON  
ELECTRICAL AND POWER ENGINEERING - EPE 2014  
held in IASI, ROMANIA, October 16-18, 2014.

Conference Chair,  
Prof. Marcel Istrate  
Dean of Electrical Engineering Faculty





**EPE 2014**  
8th  
edition

October 16-18, 2014  
IASI, ROMANIA

2014 INTERNATIONAL CONFERENCE AND EXPOSITION ON  
ELECTRICAL AND POWER ENGINEERING  
FACULTY OF ELECTRICAL ENGINEERING



# EPE 2014

## PROCEEDINGS

of the

## 2014 INTERNATIONAL CONFERENCE AND EXPOSITION ON ELECTRICAL AND POWER ENGINEERING

Organized by

Faculty of Electrical Engineering, "Gheorghe Asachi" Technical University of Iasi

IEEE Romania Section

SETIS – Graduates Association of the Faculty of Electrical Engineering in Iasi

# PROCEEDINGS OF THE 2014 INTERNATIONAL CONFERENCE AND EXPOSITION ON ELECTRICAL AND POWER ENGINEERING

Organized by:

Faculty of Electrical Engineering, "Gheorghe Asachi" Technical University of Iași  
IEEE Romania Section  
SETIS – Graduates Association of the Faculty of Electrical Engineering in Iași

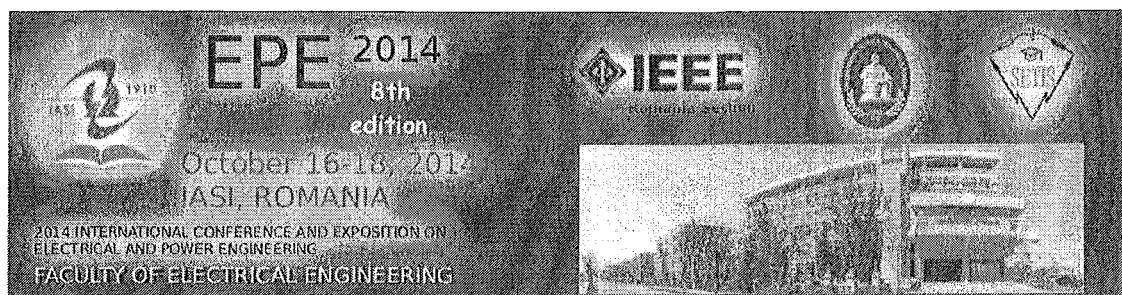
The responsibility for the content and the English language of each paper in the proceedings rests solely with its authors. As some of the delivered papers did not meet the issued guidelines, the editors performed their necessary formatting in order to get a good uniformity of the proceedings.

Editors: Mihai Gavrilas, Faculty of Electrical Engineering, Iași  
Cristian-Gyozo Haba, Faculty of the Electrical Engineering, Iași  
Ovidiu Ivanov, Faculty of the Electrical Engineering, Iași

IEEE Catalog Number: CFP1447S-USB  
ISBN: 978-1-4799-5848-1

Copyright and Reprint Permission: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923. For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Operations Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved. Copyright 2014 by IEEE.

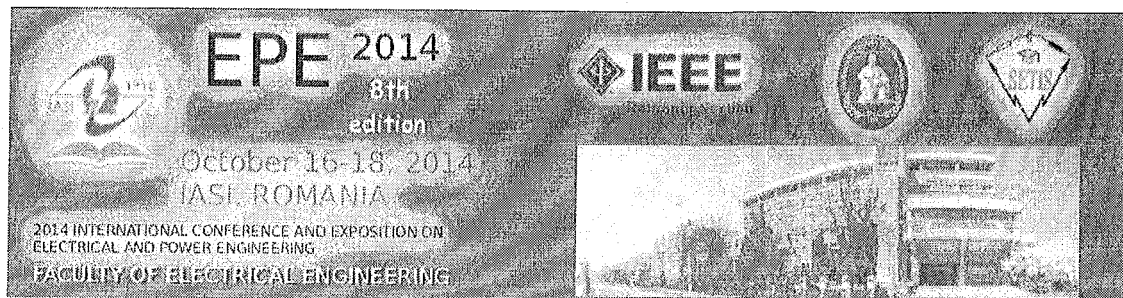




**2014 International Conference on  
Electrical and Power Engineering  
EPE 2014**

**Iasi, 16-18 October 2014**

**Technical Program**



## EPE 2014 Technical Program

### 16 October 2014

08.30 - 10.00	Greeting and reception of participants
10.00 - 10.45	Opening Ceremony
10.45 - 11.00	Presentation project COMMIT
11.00 - 11.30	Coffee Break
11.30 - 13.00	Keynote lectures
13.00 - 14.30	Lunch
14.30 - 16.00	Oral Sessions 1 and Poster Session 1
16.00 - 16.30	Coffee Break
16.30 - 18.00	Oral Sessions 2
18.30 - 23.00	Gala Dinner

### 17 October 2014

09.30 - 11.00	Oral Sessions 3 and Poster Session 2
11.00 - 11.30	Coffee Break
11.30 - 13.00	Keynote Lectures
13.00 - 14.30	Lunch
14.30 - 16.00	Oral Sessions 4
16.00 - 16.30	Closing Ceremony



# Detailed Technical Program

16 October 2014

08.30 - 10.00

**Greeting and reception of participants**

Faculty Hall, Building E

10.00 - 10.45

**Opening Ceremony**

“Dragomir Hurmuzescu” Conference Hall, Building E

10.45 - 11.00

**Presentation of project COMMIT**

“Dragomir Hurmuzescu” Conference Hall, Building E

<b>Prof. Irina Lungu, (RO)</b> Vice Rector of “Gheorghe Asachi” Technical University of Iasi	EU COMMIT Project - Tools to develop the Social Dimension of Universities
--	--

11.00 - 11.30

Coffee Break

11.30 - 13.00

**Keynote Lectures**

“Dragomir Hurmuzescu” Conference Hall, Building E

Chairman: Romeo Ciobanu (RO)

<b>Prof. Janusz Mindykowski, (PL)</b> Gdynia Maritime University, Poland	Power Quality on Ships: Today and Tomorrow's Challenges
---	--

<b>Prof. Goran Stojanovic, (RS)</b> University of Novi Sad, Serbia	Design and characterization of different sensors fabricated on flexible substrate
---	--

<b>Prof. Cristian Nichita, (FR)</b> Université du Havre, Le Havre, France	Simulation methods for distributed generation systems based on wind and tidal energy conversion systems
--	---

13:00-14:30

Lunch

14:30-16:00

## Oral sessions

### Applied Informatics and Automation 1

14:30-16:00, E108 Hall, Building E

Chairmen: Mikulas Huba (SK), Gheorghe Livint (RO)

805	Resonant jumps in feedback nonlinear systems containing gain-changing nonlinearity	(AIAU)	Mitica Temneanu, (RO), José Francisco Blanco Villalba, (ES)
784	Resonant jumps in feedback nonlinear systems containing saturation-type nonlinearity	(AIAU)	Mitică Temneanu, (RO), Mariana Sireteanu, (RO)
654	Design of the PID controllers by the maximum stability degree criterion	(AIAU)	Ion Fiodorov, (MD), Bartolomeu Izvoreanu, (MD), Irina Cojuhari, (MD)
726	Fuzzy Logic Controller Design and Implementation for Industrial Applications	(AIAU)	Lucian Mastacan, (RO), Catalin Constantin Dosoftei, ()
720	Demonstrating effects of a dynamical feedforward control for the first order system	(AIAU)	Peter Tapak, (SK), Mikulas Huba, (SK)
714	Comparing FOPDT and IPDT model based PI controllers with disturbance observer	(AIAU)	Peter Tapak, (SK), Mikulas Huba, (SK)

### Electromagnetic Field and Electrical Circuits

14:30-16:00, E102 Room, Building E

Chairmen: Camelia Petrescu (RO), Radu Ciupa (RO)

533	Numerical modelling of an electromagnetic actuator for vacuum contactors	(EFEC)	Alexandru Radulian, (RO), Nicolae Mocioi, (RO)
570	Analysis of a novel type of ferrofluid actuator with permanent magnets in Halbach pattern	(EFEC)	Camelia Petrescu, (RO), Radu Olaru, (RO)
621	Ignition modelling of a double spark	(EFEC)	Bogdan E. Hnatiuc, (RO), M. Hnatiuc, (RO), C. Petrescu (RO), D. Astanei, (RO)
703	Multiobjective optimization of an induction heating device using evolutionary algorithms	(EFEC)	Camelia Petrescu, (RO), Lavinia Ferariu, (RO)
649	Case studies on electromagnetic interference between HVPL and buried pipelines	(EFEC)	Denisa Liliana Ștef, (RO), Dan Doru Micu, (RO), Levente Czumbil, (RO)
551	Uncertainty assessment in ship magnetic field measurement with fluxgate magnetometer	(EFEC)	Georgiana Marin, (RO), Gheorghe Samoilescu, (RO), Octavian Baltag, (RO), Serghei Radu, (RO)



689	Magnetic coil design for evaluating the response of the spinal cord during magnetic stimulation	(EFEC)	Mihaela Cretu, (RO), Radu V. Ciupa, (RO)
-----	---	--------	--

## Electrical Machines 1

14:30-16:00, E106 Hall, Building E

Chairmen: Aurel Câmpeanu (RO), Cociu Voinea Radu (RO)

561	New winding solution for the improvement of the three-phase induction motor performance	(ELMA)	Leonard Livadaru, (RO), Alecsandru Simion, (RO), Ana-Maria Mihai, (RO), Adrian Munteanu, (RO), Florin Lazăr, (RO), Andreea Adam, (RO)
562	Considerations regarding modelling, simulation and monitoring of dynamic regimes for asynchronous motors	(ELMA)	Monica-Adela Enache, (RO), Aurel Campeanu, (RO), Sorin Enache, (RO), Toma Cimpeanu, (RO)
793	Transitory processes determined by the shunt-reactors in the high voltage networks. Theoretical synthesis and simulation	(ELMA)	Aurel Campeanu, (RO), Monica-Adela Enache, (RO), Ladislau Augustinov, (RO), Elisabeta Spunei, (RO), Gheorghe Oprea, (RO)
754	Efficient finned housing	(ELMA)	Aurel Ionut Chirilă, (RO), Anca Simona Deaconu, (RO), Ioan Dragoș Deaconu, (RO), Valentin Năvrăpescu, (RO), Constantin Ghiță, (RO), Mihaela Scorțescu, (RO)
687	Coupled software analysis of a 9/10 poles BLDC machine	(ELMA)	Florin Lazăr, (RO), Alecsandru Simion, (RO), Leonard Livadaru, (RO), Andreea Zbant, (RO)
742	Operation of the synchronous generators with permanent magnets in parallel to the power grid	(ELMA)	Ambros Tudor, (MD), Kiorsak Mihail, (MD)

## Metrology and Measurement Systems 1

14:30-16:00, E202 Room, Building E

Chairmen: Janusz Mindykowski (PL), Marinel Temneanu (RO)

536	Algorithm for automatic wear estimation of railway contact strips based on 3D scanning results	(MMSY)	Slawomir Judek, (PL), Leszek Jarzebowicz, (PL)
609	Comparative analysis of power quality on bus-bars of the main switchboard and terminal of exemplary load at marine microgrid	(MMSY)	Andrzej Pilat, (PL), Tomasz Tarasiuk, (PL)
610	Realization of digital LCR meter	(MMSY)	Mitar Simić, (RS)

670	Electrochemical interdigitated conductimetric pH sensor based on RuO <sub>2</sub> thick film sensitive layer	(MMSY)	Libu Manjakkal, (PL), Katarina Cvejic, (PL), Jan Kulawik, (PL), Krzysztof Zaraska, (PL), Dorota Szwagierczak, (PL)
728	Planar impedancemetric NO sensor with thick film mixed Dy-based oxides sensing electrodes	(MMSY)	Katarina Cvejic, (PL), Libu Manjakkal, (PL), Jan Kulawik, (PL), Krzysztof Zaraska, (PL), Dorota Szwagierczak, (PL)
801	Automated electrospinning system	(MMSY)	Cristian Zet, (RO), Catalin Ionescu, (RO)

## Power Electronics and Electrical Drives

14:30-16:00, EN001 Room, Building EN  
Chairmen: Iulian Birou (RO), Mihai Albu (RO)

549	Error analysis of calculating average d-q current components using Regular Sampling and Park transformation in FOC drives	(PEED)	Leszek Jarzebowicz, (PL)
853	Characterization of ferrite materials used as a core for multi-phase coupled inductors	(PEED)	Nikola Lečić, (RS), Akhil Chandran Mukkattu Kuniyil, (RS), Goran Stojanović, (RS)
638	A speed servo drive with disturbance observer and the moment of inertia identification	(PEED)	Igor Bélai, (SK), Mikuláš Huba, (SK)
860	Real-time robust controlled driving system with permanent-magnet synchronous motor	(PEED)	Iulian Mircea Tudor BIROU, (RO), Calin RUSU, (RO), Sorin PAVEL, (RO), Virgil MAIER, (RO)
890	Low-cost low-power microgrid with photovoltaic panels	(PEED)	Mihai Albu, (RO), Daniel Sticea, (RO), Cristian Fosalaus, (RO), Gabriel Chiriac, (RO)
894	Rehabilitation of the tram DC traction with modern power converters	(IA)	Nuca Ilie, (MD), Nuca Iurie, (MD), Motroi Alexandr, (MD), Eşanu Vitalie (MD)

## Power Systems 1

14:30-16:00, EN212 Room, Building EN  
Chairmen: Constantin Bulac (RO), Mihai Gavrilas (RO)

518	Research on black-start of HVDC power transmission system based on pseudo-deicer mode	(POSY)	Chen Bing, (CN), Li Qun, (CN), Song Jingxian, (CN), Wang Chenggen, (CN)
543	Overload protection of power lines	(POSY)	Aneta Hazi, (RO), Gheorghe Hazi, (RO)
668	A review of impedance-based fault approaches for transmission lines	(POSY)	M. Dragomir, (RO), A. Miron, (RO), M. Istrate, (RO), A. Dragomir, (RO)



775	On-line overhead transmission line and transformer parameters identification based on PMU measurements	(POSY)	Bogdan Vicol, (RO)
575	Offline battery pack model optimization	(POSY)	Turos Laszlo, (RO), Iuliu Szekely, (RO), Géza Csernath, (RO), Katalin György, (RO)
696	Management and energy efficiency Study case concerning CHP implementation	(POSY)	Liviu Eduard Pungaru, (RO), Marcel Istrate, (RO), Cătălin Diaconu, (RO)

## Renewable Energy 1

14:30-16:00, EN114 Room, Building EN  
Chairmen: Mircea Gușă (RO), Dan L. Milici (RO)

825	The study of the electric parameters of an autonomous supply system with photovoltaic panel	(REEN)	Ioan Baci, (RO), Corina Daniela Cuntan, (RO), Bella Gabor, (RO)
542	Environmental and economic effect of losses in a photovoltaic system	(REEN)	Aneta Hazi, (RO), Gheorghe Hazi, (RO)
541	EMpower university efficiency. On some case studies applied on the buildings belonging to Technical University of Cluj-Napoca	(REEN)	Andrei Ceclan, (RO), Krisztina Vezer, (RO), Dan D. Micu, (RO), Levente Czumbil, (RO)
835	The impact of the support scheme on the installed capacity in renewable energy sources in Romania	(REEN)	Pavel Atănăsoae, (RO), Eugen Hopulele, (RO)
832	To use a microcontroller in a small energy power plant management	(REEN)	Dan L. Milici, (RO), Mariana Rodica Milici, (RO), Win Flore, (BE)

## Poster Session 1

14:30-16:00, Faculty Hall, Building E  
Chairmen: Marinel Temneanu (RO), Alexandru Sălceanu (RO), Valeriu David (RO)

524	Appliance characterization based on spectral components analysis	(MMSY)	Marinel Temneanu, (RO)
565	Evolution in calibration of electronic non-automatic weighing instruments	(MMSY)	George Florian Popa, (RO), Brândușa Pantelimon, (RO)
572	Contribution to determination of magnetic properties of weights by susceptometer method	(MMSY)	George Florian Popa, (RO), Brândușa Pantelimon, (RO)
577	Wet road surfaces detection by measuring the infrared reflected radiation	(MMSY)	Ștefan Silion, (RO), Cristian Foșalău, (RO)

578	Wet road surfaces detection by measuring the air humidity in two points	(MMSY)	Ștefan Silion, (RO), Cristian Foșalău, (RO)
587	Determination of the indication error for the automatic mass comparator, auxiliary of national prototype kilogram, using micromass standards	(BNMT)	Adriana Vâlcu, (RO)
592	ROBOTVOICE - Voice command of a robot	(MMSY)	Marius Branzila, (RO), Constantin Sarmasanu, (RO), Gabriel Fanaru, (RO)
613	Graphene layers used as cryogenic temperature sensor	(MMSY)	Eusebiu Ilarian Ionete, (RO), Bogdan Florian Monea, (RO), Mihai Vijulie, (RO), Amalia Soare, (RO), Stefan Marian Iordache, (RO), Ana-Maria Iordache, (RO), Ioan Stamatini, (RO), Alexandru Salceanu, (RO)
625	Expanding the functionality of an EMF spectrum analyzer with self-performed near field probes	(MMSY)	Oana-Maria Neacsu, (RO), Marius Valerian Paulet, (RO), Andrei Salceanu, (RO)
664	The impact of three-dimensional morphological changes and local properties induced by plasma treatment on polyimide films at the interface with some electronic components	(BNMT)	Iuliana Stoica, (RO), Andreea Irina Barzic, (RO), Camelia Hulubei, (RO), Daniel Țimpu, (RO), Iuliana Stoica, (RO), Dan Sorin Vasilescu, (RO)
667	Electronic recording of radiation effective doses in medical imaging investigations	(BNMT)	Lidia Dobrescu, (RO)
673	Evaluating the influence of DECT transmission systems on sensitive medical devices	(MMSY)	Alexandru Sălceanu, (RO), Ionuț Nica, (RO), Gabriel Lupuleasa, (RO), Marius Păuleț, (RO)
749	Analysis of endodontic therapy results: radiodensitometric study	(MMSY)	Mihaela Sălceanu, (RO), Andrei Sebastian Ardeleanu, (RO)
764	A photopyroelectric measurement device for liquid investigation and monitoring	(MMSY)	Mircea Nicolae Pop, (RO)
779	Battery regeneration technology by dielectric method	(MMSY)	Macovei Ștefan Cristian, (RO), Curelaru Alina Cornelia, (RO), Ursache Ștefan, (RO)
783	Design of data acquisition system for environmental sensors manufactured in LTCC technology	(MMSY)	Sireteanu Mariana, (RO), Iavorschi Anatolie, (MD), Libu Manjakkal, (PL), José Francisco Blanco Villalba, (RO)
788	Obtaining and testing of metallic waste thermosetting powders with different grain sizes and components	(MMSY)	Ursan George-Andrei, (RO), Šooš Lubomír, (SK), Juraj Beniak, (SK), Tugui Costel, (RO), Macovei Ștefan Cristian, (RO), Grapina Razvan Ioan, (RO)

789	Testing of physical, mechanical and chemical properties of flakes and granules from thermoplastic WEEE selected by components	(MMSY)	Ursan George-Andrei, (RO), Maria Ursan, (RO), Tugui Costel, (RO), Bejenaru Cristian, (RO)
806	Modeling and simulation of polymer-based chemiresistor sensors	(MMSY)	José Francisco Blanco Villalba, (ES)
808	Panels and profiles for constructions based on bio-composites	(MMSY)	Plopa Olga, (RO), Ursan Maria, (RO), Tabrea Adrian, (RO)
811	Realization of polymeric coatings in special electrochemical conditions based on electroactive polymer networks for supercapacitor purposes	(MMSY)	Curelaru Alina Cornelia, (RO), Macovei Stefan Cristian, (RO), Arădoaei Sebastian, (RO), Coman Adrian Viorel, (RO)
812	Equivalent electrical circuit modeling in order to characterize polymers in terms of electrochemical for supercapacitor purposes	(MMSY)	Alina-Cornelia Curelaru, (RO), Macovei Stefan Cristian, (RO), Coman Adrian Viorel, (RO)
830	A LabVIEW based data acquisition system for temperature measurement of animal liver tissue with different percentage of magnetic insertions in microwave frequency range	(MMSY)	Romeo Ciobanu, (RO), Radu Damian, (RO), Thomas Schreiner, (RO), Radu Iliescu, (RO)
857	Considerations on the dielectric properties and thermal profile of geopolymeric composites with ferro / ferrimagnetic inserts	(MMSY)	Mihaela Aradoaei, (RO), Ioan Pepenar (RO)
525	Influence of knitting techniques on ESD performances	(EMC&EMB)	Marinel Temneanu, (RO), Andrei Sebastian Ardeleanu, (RO), Asim Egemen Yilmaz, (TR), Mihai Penciu, (RO)
627	Study upon the disturbing potential of TETRA electromagnetic traffic	(EMC&EMB)	Silviu Ursache, (RO), Marius Păuleț, (RO), Andrei Sălceanu, (RO), Cătălina Luca (RO)
630	Approach on simulating and measuring the SAR	(EMC&EMB)	Bogdan-Dumitru Alistar, (RO), Andrei Salceanu, (RO), Gabriel Lupuleasa, (RO)
636	Monitoring the environment by enhancing the capabilities of a fleet tracking system	(EMC&EMB)	Andrei Salceanu, (RO), Valeriu David, (RO), Ionut Nica, (RO)
642	Researches concerning a bioelectromagnetic laboratory for microwave radiometry	(EMC&EMB)	Baltag Octavian, (RO), Rau Miuta Carmina, (RO)
663	10 Hz-20 kHz single-axis magnetic field meter	(EMC&EMB)	Eduard Lunca, (RO), Emilian Staicu, (RO), Mihai Balauca, (RO)
671	An evaluation of the measurement uncertainty for the electrostatic discharge current parameters	(EMC&EMB)	Silviu Ursache, (RO), Alexandru Salceanu, (RO), Eduard Lunca, (RO)
674	Electromagnetic field strength distribution in Wi-Fi signals covered areas: an experimental analysis of the variables that influence the exposure levels	(EMC&EMB)	Paul Bechet, (RO), Simona Miclaus, (RO), Dimitrios Stratakis, (GR), Andreas Miaoudakis, (GR)



678	Comparative characterization of the electromagnetic near field radiated by mobile phones in GSM and UMTS communication technologies	(EMC&EMB)	Simona Miclaus, (RO), Paul Bechet, (RO)
688	Analysis of current pulse generated by electrostatic discharge simulator	(EMC&EMB)	Oana Maria Neacsu, (RO), Marius Valerian Paulet, (RO), Alexandru Salceanu, (RO)
697	Sensing the hemodynamic of the brachial-ulnar-radial arterial system	(EMC&EMB)	Cristiana Savastru, (RO), Alexandru Morega, (RO), Mihaela Morega, (RO)
702	Operating theatre electromagnetic pollution generated by radio/electrosurgery. Medical devices electromagnetic interference	(EMC&EMB)	Ştefan Drăgan, (RO), Elena-Niculina Drăgoi, (RO), Daniel Constantinescu, (RO), Ioan Tudosă, (IT), Vlad Dafinescu, (RO)
710	Near-field level emitted by professional radio communication devices: preliminary measurements and simulations for an occupational exposure assessment approach	(EMC&EMB)	Paljanos Annamaria, (RO), Simona Miclaus, (RO), Calin Munteanu, (RO)
735	Evaluation of environmental low frequency magnetic fields in occupational exposure	(EMC&EMB)	Mihaela Morega, (RO), Ileana Maria Baran, (RO), Alexandru Mihail Morega, (RO)
760	Intelligent system for a personalized diet of obese patients with cancer	(EMC&EMB)	Oana Geman, (RO), Iuliana Chiuchisan, (RO), Andrei Coriolan Iuresi, (RO), Iulian Chiuchisan, (RO), Mihai Dimian, (RO), Anca Bosancu, (RO), Daniela Buliga, (RO), Mihai Covasa, (RO)
<b>761</b>	Adopting the internet of things technologies in health care systems	(EMC&EMB)	Iuliana Chiuchisan, (RO), Hariton Nicolae Costin, (RO), Oana Geman, (RO)
762	NeuroParkinScreen –A health care system for neurological disorders screening and rehabilitation	(EMC&EMB)	Iuliana Chiuchisan, (RO), Oana Geman, (RO), Iulian Chiuchisan, (RO), Andrei Coriolan Iuresi, (RO), Adrian Graur, (RO)
776	EMF exposure measurements on 4G/LTE mobile communication networks	(EMC&EMB)	Eduard Lunca, (RO), Catalin Damian, (RO), Alexandru Salceanu, (RO)
777	Automatic prediction of paroxysmal atrial fibrillation in patients with heart arrhythmia	(EMC&EMB)	Dragos Arotaritei, (RO), Cristian Rotariu, (RO)
797	Virtual device for recovering the hand functions	(EMC&EMB)	Marius Valerian Paulet, (RO), Oana Maria Neacsu, (RO), Alexandru Salceanu, (RO)
798	Wireless monitoring system of the heart rate	(EMC&EMB)	Marius Valerian Paulet, (RO), Oana Maria Neacsu, (RO), Andrei Salceanu, (RO)
836	1GHz low-thermal microwaves effect on mitotic division of vegetal tissues	(EMC&EMB)	Mihaela Răcuciu, (RO), Cora Iftode, (RO), Simona Miclăuş, (RO)

849	Investigation of the textile structures with different design used in electromagnetic shielding	(EMC&EMB)	Alina - Lăcrămioara Apreutesei, (RO), Antonela Curteza, (RO), Valeriu David, (RO), Ionuț Nica, (RO)
855	Electrostatic discharge testing of several ESD protective textiles used in electronic industry	(EMC&EMB)	Gabriela G Telipan, (RO), Mircea Ignat, (RO), Laurentiu Catanescu, (RO), Beatrice Moasa, (RO)
886	Methods for planar integrated low pass filter performance improvements in high frequency	(EMC&EMB)	Adina Racasan, (RO), Calin Munteanu, (RO), Vasile Topa, (RO), Claudia Pacurar, (RO), Claudia Hebedean, (RO), Mihaela Cislariu, (RO)
887	High frequency modeling of square spiral inductor	(EMC&EMB)	Claudia Pacurar, (RO), Vasile Topa, (RO), Adina Racasan, (RO), Calin Munteanu, (RO), Claudia Hebedean, (RO), Dan Rafiroiu, (RO), Mihaela Cislariu, (RO)
888	Efficiency determination for the improvement methods used for planar structures applied on EMI filters	(EMC&EMB)	Claudia Alana Hebedean, (RO), Calin Munteanu, (RO), Adina Racasan, (RO), Claudia Pacurar, (RO)
895	The study of high frequency electromagnetic shielding performance by numerical modeling	(EMC&EMB)	Florin Miron, (RO), George Mihai, (RO), Marius Purcar, (RO), Calin Munteanu, (RO)
883	Automatic transfer switch using IEC 61850 protocol in smart grids	(POSY)	Aurel Botezan, (RO), Radu Timovan, (RO), Ioan Boiciuc, (RO), Silviu Stefanescu, (RO), Dan Rafiroiu, (RO)
859	Efficient distribution through the medium voltage network belonging to Cluj-Centre electrical power station	(POSY)	Sorin Gheorghe Pavel, (RO), Virgil Maier, (RO), Iulian Birou, (RO), Horia Gheorghe Beleiu, (RO), Vasile Fărcaș, (RO)
707	Considerations about power system grounding for different soil structure	(POSY)	Liviu Neamț, (RO), Olivian Chiver, (RO), Cristian Barz, (RO), Cristinel Costea, (RO), Zoltan Erdei, (RO)

## Workshop EMC&EMB 1

14:30-16:00, "Dragomir Hurmuzescu" Conference Hall, Building E  
Chairmen: Mihaela Morega (RO), Octavian Postolache (PT)

698	Percutaneous microwaves hyperthermiastudy by numerical simulation	(EMC&EMB)	Mihaela Morega, (RO), Alexandru M. Morega, (RO), Ignacio Martin Diaz, (ES), Alina M. Sândoiu, (RO)
879	KSGphysio – Kinect serious game for physiotherapy	(EMC&EMB)	Nuno Duarte, (PT), Octavian Adrian Postolache, (PT), Jacob Scharcanski, (BR)

880	PhysioMate - Pervasive physical rehabilitation based on NUI and gamification	(EMC&EMB)	Rui Neves Madeira, (PT), Luís Costa, (PT), Octavian Adrian Postolache, (PT)
829	Wearable impedance analyzer based on AD5933	(EMC&EMB)	Liviu Breniuc, (RO), Valeriu David, (RO), Cristian-Győző Haba, (RO)
727	fECG delineation from abdominal signals using wavelet transform	(EMC&EMB)	Bogdan Hurezeanu, (RO), G.M. Ungureanu, (RO), D.D. Tarălungă, (RO), R. Strungaru, (RO), I. Gussi, (RO), Werner Wolf, (DE)

16:00-16:30

Coffee Break

16:30-18:00

## Applied Informatics and Automation 2

16:30-18:00, E108 Hall, Building E

Chairmen: Peter Tapak (SK), Lucian Mastacan (RO)

885	Control strategies for hybrid electrical vehicles with two energy sources on board	(AIAU)	Gheorghe Livint, (RO), Alina-Georgiana Stan (Baciu), (RO)
773	Remote administration of hardware resources using TCP/IP Protocol and WEB technologies	(AIAU)	Catalin Damian, (RO), Eduard Lunca, (RO), Mircea Ilinca, (RO)
759	Model reference control of nonlinear time-delayed 1-st order plants	(AIAU)	Pavol Bisták, (SK), Mikuláš Huba, (SK)
715	Robust tuning of the simplest dead time compensator	(AIAU)	Mikulas Huba, (SK)
731	Robustness analysis of a disturbance-observer based PI control	(AIAU)	Mikulas Huba, (SK)
733	Optimal tuning for a double integrator plus dead time	(AIAU)	Pavol Bisták, (SK), Mikuláš Huba, (SK), Igor Béla, (SK)

## Electrical Machines 2

16:30-18:00, E106 Hall, Building E

Chairmen: Alecsandru Simion (RO), Leonard Livadaru (RO)

563	Aspects regarding optimal design of low power synchronous motors	(ELMA)	Ion Vlad, (RO), Aurel Campeanu, (RO), Sorin Enache, (RO), Monica-Adela Enache, (RO)
-----	--	--------	---

606	Frequency domain numerical analysis of rotor cage induction motor	(ELMA)	Olivian Chiver, (RO), Liviu Ioan Neamt, (RO), Cristian Barz, (RO), Cristinel Costea, (RO)
651	Study about influence of power system operation and control of the piezoelectric actuators	(ELMA)	Dan L. Milici, (RO), Ilie Nitani, (RO), Mariana R. Milici, (RO), Vasilis Chatziathanasiou (GR), Konstantinos Papakostas (GR)
691	The advantages of numerical analysis for claw pole alternator	(ELMA)	Barz Cristian, (RO), Oprea Constantin, (RO), Olivian Chiver, (RO), Erdei Zoltan, (RO), Neamt Liviu, (RO), Horgos Mircea, (RO), Pop Vadean Adina, (RO)
874	Influence of rotor design over the back EMF of permanent magnet synchronous generators	(ELMA)	Zbanț (Adam) Andreea, (RO), Simion Alecsandru, (RO), Livadaru Leonard (RO), Lazăr Florin Ioan, (RO)
872	Analysis of transient short circuit current and fluxes expressions of induction machines	(ELMA)	Voinea Radu Cociu, (RO), Livia Cociu, (RO)

## Metrology and Measurement Systems 2

16:30-18:00, E202 Room, Building E

Chairmen: Romuald Masnicki (PL), Emil Vremera (RO)

531	Data acquisition system for testing the insulation between the stator laminations of high power electrical machines	(MMSY)	Florin Călin, (RO), Constantin-Daniel Oancea, (RO)
622	Designing wearable textile structures with embedded conductive yarns and testing their heating properties	(BNMT)	Marian Silviu Poboroniuc, (RO), Antonela Curteza, (RO), Viorica Cretu, (RO), Laura Macovei, (RO)
672	A low frequency current transducer using amorphous materials	(MMSY)	Cristian Fosala, (RO), Stefan Sillon, (RO), Cristian Zet, (RO)
699	A low cost non-contact linear transducer for dynamic measuring small displacements of the ferrofluid magnetic actuators	(MMSY)	Alexandru Arcire, (RO), Dinu Patelli, (RO)
757	The time relationship in registration of data from electrical power system	(MMSY)	Romuald Masnicki, (PL), Janusz Mindykowski, (PL), Damian Hallmann, (PL)
828	Embedded system for increasing home comfort and security	(MMSY)	Liviu Breniuc, (RO), Cristian-Győző Haba, (RO)



## Power Systems 2

16:30-18:00, EN212 Room, Building E

Chairmen: Dorin Bică (RO), Mircea Gușă (RO)

532	Study, design and industrial implementation of capacitive power factor controller for large load fluctuations in steel industry	(POSY)	Sorin Ioan Deaconu, (RO), Gabriel Nicolae Popa, (RO), Radu Babău, (RO)
614	Knowledge extraction from smart meters for consumer classification	(POSY)	Gheorghe Grigoras, (RO), Florina Scarlatache, (RO)
831	Application of virtual power plants approaches	(POSY)	Lucian Ioan Dulău, (RO), Mihail Abrudean, (RO), Dorin Bică, (RO)
631	Considerations regarding implementation of wide area monitoring, protection and control in North-East of Romanian power grid	(POSY)	Alexandru Miron, (RO), Marian Dragomir, (RO), Crenguta Elena Bobric, (RO), Cezar Popa, (RO)
662	Aeration solution of water used by hydraulic turbines to respect the environmental policies	(POSY)	Florentina Bunea, (RO), Gabriel Dan Ciocan, (CA), Diana Maria Bucur, (RO), Georgiana Dunca, (RO)
823	Domain specific languages in power systems engineering	(POSY)	Marius Stefan Muji, (RO), Dorin Bică, (RO), Micea Dulău, (RO)

## Quality, Reliability and Safety

16:30-18:00, EN109, Building EN

Chairmen: Michael Gerke (DE), Florin Munteanu (RO)

571	Visual inspection of power lines by U.A.S.	(QRSA)	Michael Gerke, (DE), Peter Seibold, (DE)
598	The diagnosis of non-operation states of switch electromechanism	(QRSA)	Elisabeta Spunei, (RO), Ion Piroi, (RO), Cristian Muscai, (RO), Florina Piroi, (AT)
877	The determination Nitrogen Oxide Emissions by Monitoring the Steam Temperature of the Boiler	(QRSA)	Staviri Florin Vlad, (RO)
865	Street lighting power quality	(QRSA)	Radu Pentiu, (RO), Dorin-Dumitru Lucache, (RO), Valentin Vlad, (RO), Sorin Pavel, (RO)
821	Information on manufactured nanomaterials occupational exposure in the construction sector	(QRSA)	Pintea Anca, (RO), Razvan Grapina, (RO)

## Renewable Energy 2

16:30-18:00, EN114 Room, Building EN

Chairmen: Aneta Hazi (RO), Ciprian Nemeş (RO)

566	Schemes of the use of heat pumps as the component of the node of energy consumption of meat - processing plant	(REEN)	M. Sit, (MD), V. Berzan, (MD), B. Sit, (MD)
552	Biogas potential assessment for Moldova	(REEN)	Olga Şveţ, (MD)
730	Study on three-phase photovoltaic systems under grid faults	(REEN)	Ioan Viorel Banu, (RO), Marcel Istrate, (RO)
897	On reducing the environmental impact by harnessing and burning combustible gases from urban sewage water	(REEN)	Constantin Asaftei, (RO), Nicoleta Mariana Iftimie, (RO)
620	A new solar energy converting system with vertical photovoltaic panels	(REEN)	Adochitei Mihaela, (RO), Harabagiu Catalin, (RO), Astanei Dragos, (RO), Burliea Radu, (RO)

## Workshop EMC&EMB 2

16:30-18:00, "Dragomir Hurmuzescu" Conference Hall, Building E

Chairmen: Calin Munteanu (RO), Cristian Zet (RO)

682	CAD/CAE modelling of the human exposure to electric field inside a high voltage substation	(EMC&EMB)	Calin Munteanu, (RO), Marius Purcar, (RO), Dan Bursasiu, (RO), Emil Merdan, (RO), Vasile Farcas, (RO)
666	AC interference assessment and impact on personnel safety	(EMC&EMB)	Marius Purcar, (RO), Calin Munteanu, (RO), Leslie Bortels (BE), Christophe Baeté, (RO)
618	Assessment of electromagnetic radiation exposure of embarked personnel on Romanian naval ships	(EMC&EMB)	Georgiana Marin, (RO), Gheorghe Samoilescu, (RO), Octavian Baltag, (RO), Serghei Radu, (RO)
547	Nonlinear model identification of waste water decomposition processes in a hybrid plasma torch	(EMC&EMB)	Adrian Danila, (RO)
568	Control analysis through co-simulation approach of a high-speed electrical machine	(EMC&EMB)	Petru Cristinel Irimia, (RO), Mihail Grovu, (RO), Calin Husar, (RO), Daniel Fodorean, (RO)

18:30-22:00

**Gala Dinner**

Golden Stone Restaurant

17 October 2014

9:30-11:00

Oral sessions

### Electrical Apparatus

9:30-11:00, EN109 Hall, Building EN

Chairmen: Adrian Baraboi (RO), Maricel Adam (RO)

766	Asset management system - software application on power substation level	(ELAP)	Mihai Andrușcă, (RO), Maricel Adam, (RO), Alin Dragomir, (RO), Costică Roman, (RO), Liviu Andrușcă, (RO)
769	Modeling and simulation characteristics PHV sources	(ELAP)	Irimia Florin Daniel, (RO), Adrian Baraboi, (RO), Maricel Adam, (RO), Vasile Bahrin, (RO)
782	About thermal stresses monitoring and diagnosis of electrical equipment	(ELAP)	Alin Dragomir, (RO), Maricel Adam, (RO), Mihai Andrușcă, (RO), Mihai Molodeschi, (RO), Răzvan Pantelimon, (RO)
765	Using fuzzy logic for diagnosis of technical condition of power circuit breakers	(ELAP)	Mihai Andrușcă, (RO), Maricel Adam, (RO), Adrian Baraboi, (RO), Alin Dragomir, (RO), Adrian Munteanu, (RO)
619	Fault current protection control by di/dt	(ELAP)	Radu Burlica, (RO), Eugen Hnatiuc, (RO), Dragos Astanei, (RO)
780	Power flow control equipment	(ELAP)	Adrian Cotruș, (RO), Maricel Adam, (RO), Mihai Andrușcă, (RO), Mihai Molodeschi, (RO), Răzvan Pantelimon, (RO)
545	Two-phase cryogenic flow meter	(ELAP)	Eusebiu Ilarian Ionete, (RO), Bogdan Monea, (RO), Ionut Spiridon, (RO), Marian Vacaru, (RO), Alexandru Salceanu, (RO)

### Metrology and Measurement Systems 3

9:30-11:00, E202 Room, Building E

Chairmen: Brandusa Pantelimon (RO), Constantin Sarmasanu (RO)

535	Some considerations about time delay estimation of seismic signals	(MMSY)	Cristian Ghita, (RO), Razvan Doru Raicu, (RO), Cristian Teofil Oroian, (RO)
579	Analysis of the deforming regime generated by different light sources, using reconfigurable system - CompactRIO	(MMSY)	Gabriela Rata, (RO), Mihai Rata, (RO), Cristina Prodan, (RO)

582	RASPIMON- Smart sensory system for environmental monitoring	(MMSY)	Marius Branzila, (RO), Constantin Sarmasanu, (RO), Spataru Liviu, (RO)
681	Monitoring the electromagnetic traffic in an intensive care unit	(MMSY)	Alexandru Salceanu, (RO), Eduard Luncă, (RO), Cătălina Luca, (RO), Silviu Ursache (RO)
802	Detection of positions and recognition of brand logos visible on images captured using mobile devices	(MMSY)	Marcin Skoczylas, (PL)
881	Transducer electronic data sheets: why not print them?	(MMSY)	Vitor Viegas, (PT), Pedro Silva Girão, (PT), Octavian Adrian Postolache, (PT), Jose Miguel Dias Pereira, (PT)

## Poster Session 2

9:30-11:00, Faculty Hall, Building E

Chairmen: Livia Cociu (RO), Viorel Varvara (RO), Maricel Adam (RO)

739	Discrete-time feedback linearization method for dynamical adaptive control of electronic throttle	(AIAU)	Mihaela Doina Zamfir, (RO)
554	Neural network used in thunderstorm prediction	(AIAU)	Bostan (Damian) Viviana Mihaela, (RO), Brândusa Pantelimon, (RO)
803	Control Architecture for power distribution systems based on IEC 61850, IEC 61499 and holonic concepts	(AIAU)	Valentin Vlad, (RO), Cezar Dumitru Popa, (RO), Radu-Dumitru Pentiu, (RO), Corneliu Buzduga, (RO)
751	Integrated system for prosodic features detection from speech	(AIAU)	Marius-Dan Zbancioc, (RO), Silvia Monica Feraru, (RO)
750	Using the Lyapunov exponent from Cepstral coefficients for automatic emotion recognition	(AIAU)	Marius-Dan Zbancioc, (RO), Silvia Monica Feraru, (RO)
585	Intelligent hierarchical structures for house management	(AIAU)	Dinu Cerasela, (RO)
526	About robust control on nonlinear chaotic oscillators	(AIAU)	Mihaela Cleju, (RO)
738	A study of changes in image contrast with various algorithms	(AIAU)	Catalin Ionescu, (RO), Cristian Fosolau, (RO), Daniel Petrisor, (RO)
653	Integrated service management and energy efficiency system through cloud computing technology	(AIAU)	Laura Davlea, (RO), Bogdan Teodorescu, (RO)
569	Objective erythema assessment of psoriasis lesions for psoriasis area and severity index (PASI) evaluation	(AIAU)	Simona Maria Banu, (RO), Gheorghe Toacșe, (RO), Gabriel Danciu, (RO)



521	Design and development of air temperature and relative humidity monitoring system with AVR processor based web server	(AIAU)	Mitar Simić, (RS)
758	SALEIE: An EU project aiming to propose new EIE curricula oriented to key global technical challenges	(EEPE)	Marian Poboroniuc, (RO), Anna Friesel (DK), Gheorghe Livinț (RO), Laura Grindei, (RO), Juan José Marcuello Pablo, (ES), Anthony Ward, (UK)
605	Client-server measurement system using LabVIEW for educational use	(EEPE)	Adela Vintea, (RO), Paul Schiopu, (RO), Octavian Ghita, (RO), Sorin Grigorescu, (RO)
683	Computer tools in electrical engineering education	(EEPE)	Sorin Enache, (RO), Aurel Campeanu, (RO), Ion Vlad, (RO), Monica-Adela Enache, (RO)
591	Implementation of software changes in programming techniques learning	(EEPE)	Catalin Damian, (RO), Mircea Ilinca, (RO)
576	A solution for the study and understanding of PID controllers	(EEPE)	Mihai Rata, (RO), Gabriela Rata, (RO), Vasilis Chatziathanasiou (GR)
590	Modeling and faults detection of small power wound rotor induction machine	(ELMA)	David Tsivalalaina Razafimahefa, (MG), Eric Jean Roy Sambatra, (MG), Emile Randrianarisoa, (MG), Nicolas Heraud, (FR)
596	Synchronous reluctance motors for small electric traction vehicle	(ELMA)	Florin Nicolae Jurca, (RO), Ruba Mircea, (RO), Claudia Martis, (RO), Radu Martis, (RO), Pop Piglesan Florin, (RO)
597	Analysis of maximum torque per ampere control strategy for variable reluctance synchronous machines for traction applications	(ELMA)	M. Ruba, (RO), F. Jurca, (RO), C. Martis, (RO), R. Martis, (RO), P.F. Piglesan, (RO)
607	On the calculation of the Carter factor in the slotted electric machines	(ELMA)	Alina Cristina Viorel, (RO), Ioan Adrian Viorel, (RO), Larisa Strete, (RO)
626	Contributions concerning the clock hour figure mathematical model graphical defining through the trivalent variable of Lagrange matrix	(ELMA)	Mihaela Poienar, (RO), Ovidiu - Magdin Țanța, (RO), Adrian Neculai Romanescu, (RO), Dorel Cernomazu, (RO)
655	Special three-phase to multiple different polyphase systems electric transformer	(ELMA)	Adrian Munteanu, (RO), Alecsandru Simion, (RO), Dorin Alexandru Hagianu, (RO), Leonard Livadaru, (RO), Dan Bidei, (RO)
723	Weighted value analysis on the perception of various functions of electrical products	(ELMA)	Cristina Mihaela Gheorghe, (RO)
763	Thermal study of an electric vehicle servo PMSM housing	(ELMA)	Anca Simona Deaconu, (RO), Aurel Ionut Chirila, (RO), Ioan Dragos Deaconu, (RO), Valentin Năvrăpescu, (RO), Constantin Ghiță, (RO), Mihaela Chefneux,

			(RO)
871	Transient short circuit currents and fluxes expressions of induction machines	(ELMA)	Voinea Radu Cociu, (RO), Livia Cociu (RO)
873	On the transient short circuit torque expression of Induction machines	(ELMA)	Livia Cociu, (RO), Voinea Radu Cociu, (RO)
889	F.E.M. analysis of a 3 kW line-start permanent magnet synchronous machine	(ELMA)	Florin Lazar, (RO), Alecsandru Simion, (RO), Leonard Livadaru, (RO), Irimia Daniel, (RO)
564	Electrical command methods for driving linear magnetic actuators	(EFEC)	Alexandru Arcire, (RO), Dinu Patelli, (RO)
709	1.2V CMOS cascaded low noise amplifier for IR-UWB receivers	(EFEC)	Bilal Hussain, (PT), Iman Kianpour, (PT), Vitor Garade Tavares, (PT), Helio Sousa Mendonca, (PT)
734	A low power clocked integrate-and-fire modulator for UWB application	(EFEC)	Iman Kianpour, (PT), Bilal Hussain, (PT), Vitor Grade Tavares, (PT), Helio Souca Mendonca, (PT)
752	A temperature stable 130 nm CMOS current source	(EFEC)	Aleksandar Pajkanovic, (RS), Mirjana Videnovic-Misic, (RS)
628	Hybrid backup power source behaviour in a microgrid	(IA)	Elena Dănilă, (RO), Daniel Sticea, (RO), Gheorghe Livint, (RO), Dorin Dumitru Lucache, (RO)
629	Dynamic modelling of supercapacitor using artificial neural network technique	(IA)	Elena Dănilă, (RO), Gheorghe Livint, (RO), Dorin Dumitru Lucache, (RO)
641	New energy harvesting systems, designed for new piezoelectric transducers, with charging energy management	(IA)	Lucian Pislaru-Dănescu, (RO), Ioana Pistică (RO), Laurențiu Constantin Lipan (RO), Ion Daniel Ilina, (RO), Alina Dumitru, (RO)
756	One possibility for the synthesis of autonom Petri nets	(IA)	Mihai Leca (RO)
815	Topicalities and perspectives regarding retention of dust in flue gas following the burning of charcoal In heavy-duty power boilers in power plants	(IA)	Ciochiu Ion Teodor, (RO), Gheorghe Marius Leonard Ciurezu, (RO), Osiac Viorel, (RO), Anemona Madalina Mousavi, (RO), Huza Bebe, (RO)
816	New technical solutions on the modernisation of electrical cyclones related to 1045 t/h boilers with lignite operation, to be classified in the international rules on environmental protection	(IA)	Ciochiu Ion Teodor, (RO), Gheorghe Marius Leonard Ciurezu, (RO), Osiac Viorel, (RO), Anemona Madalina Mousavi, (RO), Huza Bebe, (RO)
822	Robust control of electro-discharge processing machine	(IA)	Mircea Dulău, (RO), Dorin Bica, (RO)
861	Developing embedded control system platform for testing PMSM drives	(IA)	Calin Rusu, (RO), Iulian Birou, (RO), Mircea M. Radulescu, (RO), Alexandru Bara, (RO)

869	Irradiance scenario of a non-Lambertian intensity LED assembly	(IA)	Dragomir Radu, (RO), Dragomir Radu Bogdan, (RO), Pantelimon Brandusa, (RO)
884	Starting of large compressor motors on a weak grid – case study	(IA)	Adrian Aparaschivei, (RO), Gabriel Chiriac, (RO), Dorin D. Lucache, (RO)
700	The PMSM efficiency at variable speed for pumping applications	(PEED)	Ioan Mugur Ducar, (RO), Corneliu Marinescu, (RO)
870	Numerical simulation of BLDC electrical drive systems. Closed-loop control and sensorless control	(PEED)	Gheorghe Băluță, (RO), Marius Olariu, (RO)
875	The bidirectional power exchange using a DC/DC converter with coupled inductances	(PEED)	Sticea Daniel, (RO), Mihai Albu, (RO), Gheorghe Livint, (RO)
529	AC-DC operation influence on voltage stability and control strategies	(POSY)	Shi Rui, (CN), Zhang Baoqun, (CN), Chi Zhongjun, (CN), Chen Yanxia, (CN), Jiao Ran, (CN), Ma Longfei, (CN), Gong Cheng, (CN), Wu Xiaodan, (CN)
633	Aspects regarding the monitoring possibilities and steady-state analysis of electric energy repartition networks	(POSY)	Bogdan Constantin Neagu, (RO), Gheorghe Georgescu, (RO)
704	Optimization of a combined cool, heat and power plant based on genetic algorithms and specialized software	(POSY)	Eugen Hopulele, (RO), Mihai Gavrilas, (RO)
648	Establishing the optimal solution for retrofit of district heating networks. Case study	(QRSA)	Lefter Razvan Corneliu, (RO), Popescu Daniela, (RO), Ioan Paul Gabriel, (RO)
772	Software module for switch electromechanics failure detection	(QRSA)	Elisabeta Spunei, (RO), Ion Piroi, (RO), Cristian Muscai, (RO), Florina Piroi, (AT)
820	Manufacturing process of TiO <sub>2</sub> nanopowders. Potential releases and occupational exposure.	(QRSA)	Pintea Anca, (RO), Razvan Grapina, (RO)
876	Comparative study of methods of burning coal in a boiler of 2 MW	(QRSA)	Staviri Florin Vlad, (RO)

### Workshop EMC&EMB 3

9:30-11:00, "Dragomir Hurmuzescu" Aula, Building E  
Chairmen: Hariton Costin (RO), Cristian Fosalau (RO)

796	Approaching a career in bioengineering or biomedical engineering. 20 years of bioengineering education in Iași, Romania	(EMC&EMB)	Hariton Costin, (RO), Liliana Verestiuc, (RO), Dan Zaharia, (RO), Radu Ciorap, (RO), Cristian Rotariu, (RO)
-----	---	-----------	---

790	Assessment of rehabilitation degree in case of stroke by using image analysis of range of motion	(EMC&EMB)	Hariton Costin, (RO), Silviu-Ioan Bejinariu, (RO), Bogdan Dimitriu, (RO), Bogdan Anton-Prisăcariu, (RO)
778	Automatic analysis of the fetal heart rate variability and uterine contractions	(EMC&EMB)	Cristian Rotariu, (RO), Alexandru Pasarica, (RO), Gladiola Andruseac, (RO), Hariton Costin, (RO), Dragos Nemescu, (RO)
693	Correlations between muscular contraction type and muscle electrical activity	(EMC&EMB)	Danut Constantin Irimia, (RO), Marian S. Poboroniuc, (RO), Iuliana Pasol, (RO), Rupert Ortner, (AT)
685	RR interval prediction in ECG signals	(EMC&EMB)	Zoltan German-Sallo, (RO), Calin Ciufudean, (RO)

### 1st Workshop on Lighting: From Energy Efficiency to Light Pollution

9:30-11:00, E107 Lecture Hall, Building E

Chairmen: Dorin Beu (RO), Daniel Galatanu (RO), Dorin Lucache (RO)

845	Street lighting control system based on large-scale WSN: A step towards a smart city	(WOL)	Alexandru Lavric, (RO), Valentin Popa, (RO), Stefan Sfichi, (RO)
862	High energy saving for Africa street lighting using individual automatic dimming of HID ballasts	(WOL)	Lovaso F.F.Rakotomalala (MG), R. Zely (MG), Fadel C.M. Kebe (SN), Elena Danila, (RO), Dorin D.Lucache, (RO)
893	Light pollution assessment using photographic methods	(WOL)	Cătălin Daniel Gălățanu (RO)
799	The influence of LED street lighting upon power quality in electrical networks	(QRSA)	Radu-Dumitru Pentiu, (RO), Andrei Dascalu, (RO), Cezar-Dumitru Popa, (RO), Pavel Atănăsoae, (RO)

### Workshop on Modern Technologies for Electricity Networks

9:30-11:00, EN212 Room, Building EN

Development concept for distribution automation system in medium voltage networks of E.ON Moldova Distributie	(MTEN)	Catalin Strugaru, (RO), Stelian Constantin Buliga, (RO), Emil-Marius Iuzic, (RO), Valeriu Cocioarba, (RO), Gheorghe Ursan, (RO)
Load profiling techniques based on hybrid metaheuristic methods	(MTEN)	Avishek Banerjee (IN), Mihai Gavrilas, (RO), Ovidiu Ivanov, (RO)
Influence of renewable sources integration on technical energy losses in the high voltage distribution network	(MTEN)	Mihai Gavrilas, (RO), Gheorghe Grigoras, (RO), Stelian Constantin Buliga, (RO), Catalin Strugaru, (RO)



Solutions for the efficient use of transformers in electric distribution networks.	(MTEN)	Gheorghe Grigoras, (RO), Mihai Gavrilas, (RO), Stelian Constantin Buliga, (RO), Catalin Strugaru, (RO)
--	--------	--

11.30 -13.00

### Keynote Lectures

“Dragomir Hurmuzescu” Conference Hall, Building E

Chairman: Prof. Cristian-Gyözö Haba (RO)

<b>Prof. Miro Zeman, (NL)</b> Delft University of Technology, The Netherlands	Solar Energy in Future Electricity Systems
<b>Prof. Fabrizio Scarpa, (UK)</b> University of Bristol, United Kingdom	Auxetic and Kirigami systems in multiphysics and EMC applications
<b>Prof. Octavian Postolache, (PT)</b> Instituto de Telecomunicações, Lisbon, Portugal	Unobstrusive Smart Sensing and Pervasive Computing for Healthcare

13:00-14:30

Lunch

14:30-16:00

### Oral Sessions

#### Power Systems 3

14:30-16:00, EN212 Room, Building EN

Chairmen: Gheorghe Grigoras (RO), Ovidiu Ivanov (RO)

623	Implementation of the attractive radius method for the estimation of the lightning protection zones for a 110 kV power substation	(POSY)	Machidon Dragos-Lucian, (RO), Marcel Istrate, (RO)
616	State estimation with neural networks and PMU voltage measurements	(POSY)	Ovidiu Ivanov, (RO), Mihai Gavrilas, (RO)
781	The impact on voltage stability of the integration of renewable energy sources into the electricity grids	(POSY)	Radu Toma, (RO), Mihai Gavrilas, (RO)
634	Wind farm cable route optimization using a simple approach	(POSY)	Bogdan Constantin Neagu, (RO), Gheorghe Georgescu, (RO)

639	Influence of wind power plants on power systems operation	(POSY)	Florina Scarlatache, (RO), Gheorghe Grigoras, (RO)
717	Smart energy management in distribution networks with increasing number of electric vehicles	(POSY)	Alexandru Kriukov, (RO), Mihai Gavrilas, (RO)

## Workshop EMC&EMB 4

14:30-15:30, "Dragomir Hurmuzescu" Conference Hall, Building E  
Chairmen: Alexandru Morega (RO), Liviu Breniuc (RO)

794	Magnetic fields generated by power systems. Some representative case studies	(EMC&EMB)	Nica Ionuț, (RO)
795	Electromagnetic pollution in urban areas	(EMC&EMB)	Nica Ionuț, (RO)
617	Influence of mobile communication systems on the EKG signal	(EMC&EMB)	Luca Catalina, (RO), Alexandru Sălceanu, (RO)
722	Dynamics analysis of heart rate during magneto-therapy session	(EMC&EMB)	Doru Andrițoi, (RO), Valeriu David, (RO), Radu Ciorap (RO)
767	A portable device for ECG and photoplethysmographic signal acquisition	(EMC&EMB)	Doru Andrițoi, (RO), Valeriu David, (RO), Radu Ciorap (RO)

## International Workshop on Advances in Medical and Rehabilitation Engineering Applications

14:30-16:00, E303 Room, Building E  
Chairmen: Mandru Dan (RO), Popescu Dorin (RO)

743	Robotic glove development with application in robotics rehabilitation	(AMREA)	Dorin Popescu, (RO), Mircea Ivanescu, (RO), Sorin Manoiu-Olaru, (RO), Marian-Ionut Burtea, (RO), Nirvana Popescu, (RO)
713	Abdominal signals processing: power line interference removing by applying notch filters	(AMREA)	Dragos Daniel Taralunga, (RO), Georgeta Mihaela Ungureanu, (RO), Bogdan Hurezeanu, (RO), Rodica Strungaru, (RO), Ilinca Gussi, (RO), Werner Wolf, (DE)
686	Preliminary tests on a hybrid upper arm exoskeleton for upper arm rehabilitation in disabled patients	(AMREA)	Florin Serea, (RO), Marian Poboroniuc, (RO), Sergiu Hartopanu, (RO), Radu Olaru, (RO)
732	A web-based e-training platform for biomedical engineering education	(AMREA)	Dorin Popescu, (RO), Elena Taina Avramescu, (RO), Livia Carmen Popescu, (RO), Ioannis Pratikakis, (GR)

753	Hardware design and implementation of an intelligent haptic robotic glove	(AMREA)	Nirvana Popescu, (RO), Decebal Popescu, (RO), Alexandru Cozma, (RO), Alexandru Jan Vaduva, (RO)
684	Towards human arm rehabilitation in stroke patients by means of a hybrid FES-mechanical robotic glove	(AMREA)	Sergiu Hartopanu, (RO), Marian Poboroniuc, (RO), Florin Serea, (RO), Gheorghe Livint, (RO)
891	A study of suitable resistive torque mechanisms for rehabilitation exoskeletons	(AMREA)	Beniamin Chetran, (RO), Olimpiu Tătar, (RO), Simona Noveanu, (RO), Dan Măndru, (RO)

### IEEE EMC&EMB Meeting

15:30-16:00, "Dragomir Hurmuzescu" Conference Hall, Building E

16:00-16:30

### Closing Ceremony

16:00-16:30, "Dragomir Hurmuzescu" Conference Hall, Building E