"DUNAREA DE JOS" UNIVERSITY OF GALATI
Faculty of Automation, Computers Science,
Electrical and Electronics Engineering

ISEEE-2019

The 6th International Symposium on Electrical and Electronics Engineering

October 18-20, 2019
Galaţi, Romania

PROGRAM

Organizers

ORGANIZED BY	Faculty of Automation, Computers Science, Electrical and Electronics Engineering "*Dunărea de Jos*" University of Galaţi, Romania
In cooperation with:	Ministry of Research and Innovation (Romania)
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Foreword

*On behalf of the **ISEEE 2019** Committees and from Faculty of Automation, Computers Science, Electrical and Electronics Engineering we are inviting you to participate at the 2019 6th International Symposium on Electrical and Electronics Engineering (ISEEE), which will be held in October 2019 at "Dunarea de Jos" University of Galati, Romania. The Symposium is traditional meeting of researchers, managers, professionals, master and PhD students in order to exchange the experience and opinions with other experts from all over the world.*

***Galati** is an old and beautiful town located in the Eastern part of Romania, at the mouth of the Danube, the Siret and the Prut rivers. Galati - is the country's 5th largest town and the biggest port situated on the maritime Danube; it is 80 miles off the Black Sea shore and about 250 km far from Bucharest. It can be reached easily by train or by car from Bucharest, the capital of Romania.*

***The symposium** is **intended** as an international forum where an effective exchange of knowledge and experience amongst researchers active in various theoretical and applied areas of electrical and electronics engineering, power electronics and telecommunications can take place.*

***The objective** of the sixth symposium is oriented but not limited to the paradigm of interdependency between electrical and electronic systems.*

The symposium will provide presentations on the latest trends, in-depth knowledge about achieving the highest level of technology in the field. The event will also provide a variety of workshops, discussions, and exhibitions to fully immerse the attendees in the Symposium pleasant atmosphere. The symposium hotels are located in the heart of the city, near to the Danube. The social activities will also be included, like banquet, and trip on Danube.

We sincerely give you our invitation to come in Galati to admire its gorgeous views, wealth of nature and activities, while you will enjoy our meeting information to change ideas through international event ISEEE 2019.

Sincerely Yours,

Marian GAICEANU

General Chairman

ISEEE 2019 – AT A GLANCE

FRIDAY, 18 OCTOBER 2019					
08:30 – 10:30	**REGISTRATION** *Aula Magna 1st floor, Domneasca Street, 47*				
9:00 – 9:30	**OPENING CEREMONY** *Aula Magna, 1st floor*				
9:30 – 10:00	**PLENARY SESSION (P1)** - *Aula Magna, 1st floor*				
10:00 – 10:30	**PLENARY SESSION (P2)** - *Aula Magna, 1st floor*				
10:30– 11:00	*Coffee Break- Room Y 105*				
10:30 – 19:00	**REGISTRATION** *Stiintei Street 2, Y building, 1st floor*				
11:00 – 13.00	**TECHNICAL SESSIONS**				
	TS1 *Room Y 106*	**TS3** *Room Y 405*	***TS5*** *Room Y 102*		**TS2** Room Y 605
13:00 – 14:30	**LUNCH** *Room Y 105*				
14.30 - 15.00	**PLENARY SESSION (P3) – Y106**				
15.00– 17:00	**TECHNICAL SESSIONS**				
	SS2 *Room Y 106*	**SS3** *Room Y 405*	**TS6** *Room Y 102*	**TS8** *Room Y 101*	
17:00-17:30	*Coffee Break- Room Y 105*				
17.30-19.30	**TECHNICAL SESSIONS**				
	SS1 *Room Y 106*	**TS4** *Room Y 405*			
20:00-23.00	**Gala Dinner – Danube Stars**				
SATURDAY, 19 OCTOBER 2019					
08:00 – 09:10	**REGISTRATION** *Stiintei Street 2, Y building, 1st floor*				
9:00 – 9:30	**PLENARY SESSION (P4)** - *Room Y 106*				
9:30 – 10:00	**PLENARY SESSION (P5)** - *Room Y 106*				
10:00 – 10:30	*Coffee Break – Room Y105*				
10:30 – 12.00	**TECHNICAL SESSIONS**				
	TS7 *Room Y 106*	**TS10** *Room Y 405*	**TS9** *Room Y 102*		
12.00– 13:30	**LUNCH** *Room Y 105*				
14:30-16.30	**Boat trip on** *Danube river*				

PLENARY SESSIONS

18 October 2019 | **PS2 09.30 - 10.00 | Aula Magna |** Chair: Marian Găiceanu

Prof. Mihai Octavian Popescu, and Prof. Claudia Laurenta Popescu, "Politehnica" University of Bucharest, Romania

Electromagnetic Compatibility - Environmental Concerns

Mihai-Octavian Popescu, Claudia Laurenta Popescu
Faculty for Electrical Engineering, "Politehnica" University of Bucharest, Romania

Abstract: The progress of mankind is essentially technological. From its activity and with it have produced incommensurable amounts of techno mass considered initially as defects and then used as useful waste. The electrical, magnetic and electromagnetic quantities do not belong to the physical environment investigated by the natural way but are caused by human activity. As a consequence, the electromagnetic environment is the result of human activity in a particular space area and in a given time interval. The interaction of the environment with other electrical or electronic equipment can lead to the appearance of undesirable effects (called disturbances) manifested by degrading its performances. According to this approach, the electromagnetic environment electro physically characterizes a spatio-temporal area in which other equipment can be brought, with the risk of interference. The present paper presents two particular visions in the field of electromagnetic compatibility, namely:

- Equipment interaction - environment at the level of specialized ports;
- Assessment of the risk of interference in an approach based on a probabilistic model.

Compared to the classical approach, (source, coupling, victim) the first mode of interaction is more general (multisource) and the probabilistic approach is required because the phenomena are actually random and the interference occurs with a certain risk.

Keywords: EMC, environment

18 October 2019 | **PS2 10.00 - 10.30 | Aula Magna |** Chair: Dorel Aiordachioaie

Acad.Prof. Horia-Nicolai Teodorescu, PhD.Eng., Gheorghe Asachi Technical University of Iasi, Iasi, Romania

Background Noise and the Total Noise of Radiation Sensors and Cameras with Collimators

Mike H. Teodorescu, and Horia-Nicolai Teodorescu
Boston College, Boston, USA, Gheorghe Asachi Technical University, Iasi, Romania

18 October 2019 | **PS2 10.30 – 11.00 | Aula Magna |** Chair: Marian Găiceanu

Prof. Mihaela Popescu, "Politehnica" University of Bucharest, Romania

The energetic performances of control at constant magnetic flux of an induction traction motor

Mihaela Popescu, Alexandru Bitoleanu, Gheorghe Eugen Subțirelu
Electromechanical, Environmental and Applied Informatics Department

Faculty for Electrical Engineering, University of Craiova, Craiova, Romania

***Abstract*:** The purpose of this paper is to present and analyze the energetic performance of a traction induction motor for autonomous vehicles controlled at constant magnetic rotor flux. It follows the first part paper, in which the attention has been directed towards the control of constant stator flux and constant magnetization flux. The working algorithm is the same as the one described in Part 1, the analysis being done under the following two aspects: the mechanical characteristics and the speed control at constant torque or constant power, respectively. In the second part of this paper, a comparative analysis of the main performance indicators associated to the three control methods (constant stator flux, constant magnetizing flux and constant rotor flux) is presented. Among the quantities envisaged, there are the efficiency, power factor, input current and the rms value of the needed supply voltage.

Keywords: traction induction motor; rotor flux control; stator, flux control; magnetizing flux control; energetic performance

18 October 2017 | **PS3 14.30-15.00 | Y106 |** Chair: Dorel Aiordăchioaie

Prof. Florin Constantinescu, PhD.Eng., "Politehnica" University of Bucharest, Romania

Frequency Domain Models for Harmonic Balance Analysis of Power Networks with Nonlinear Loads

Florin Constantinescu, Alexandru Gabriel Gheorghe, Mihai Eugen Marin, Valentin Stefanescu, Gabriel Vataselu,
Department of Electrical Engineering, University Politehnica of Bucharest
Mihai Rata, University of Suceava
Florin Roman Enache, Military Technical Academy, Bucharest

Abstract: Some new frequency domain models for the harmonic balance analysis of the power networks with nonlinear loads are proposed. Firstly the models of one diode rectifiers and those of the of two diodes rectifiers used as equivalent circuit of the compact fluorescent lamps are presented. Their employment in ADS harmonic balance analysis allows a CPU time reduction with one order of magnitu-de with respect to the classical time domain analysis. The models of some CFLs, LEDs, air conditioners, vacuum cleaners, refrigerators, working in various operating conditions are presented. The parameters of these models are determined directly from the measurement results. Some measurements of nonlinear loads containing firing angle control devices, which can be used to build a frequency domain model of these loads, are presented. A frequency domain model of a one thyristor rectifier is established and verified using the measured data.

19 October 2019 | **PS7 9.00-9.30 | Y106 |** Chair: Dorel Aiordăchioaie

Prof. Iulian Ciocoiu, PhD.Eng., Gheorghe Asachi Technical University of Iasi,

Iasi, Romania

Recent Advances in Artificial Intelligence

Iulian Ciocoiu
Faculty of Electronics, Telecommunications and Information Technology, Gheorghe Asachi Technical University of Iasi, Iasi, Romania

SPECIAL SESSIONS

SS1 Aspects of Advanced Signal Processing Methods in Pattern Recognition

Chairrmen Dorel Aiordăchioaie, Dunarea de Jos University of Galati
Theodor Dan Popescu, ICI Bucharest
Anisia Culea-Florescu, Dunarea de Jos University of Galati

1. **Theodor Dan Popescu, Dorel Aiordachioaie** - *A general approach for change detection in vibration signals with application in machine health monitoring*
2. **Dorel Aiordachioaie, Theodor Dan Popescu, Mariane Manolescu** - *Aspects of features selection and extraction from time-frequency images of vibration signals*
3. **Anisia Culea-Florescu, Mihai Culea, Dorel Aiordachioaie** - *Sparse Paradigm for Change Detection Applications*
4. **Dorel Aiordachioaie, Anisia Culea-Florescu, Sorin Marius Pavel,** - *On thermal image pre-processing for fusion and classification purposes*
5. **Rustem Popa** - *ECG Signal Filtering in FPGA*
6. **Rustem Popa, Laurentiu Frangu,** *Change detection in EEG signals*

SS2 Intelligent Systems Solutions for Resource-Constrained Platforms

Chair Radu Dogaru
Secretary Bogdan Dumitrascu

1. **Radu Dogaru, Ioana Dogaru** - *BCONV-ELM: Binary Weights Convolutional Neural Network Simulator based on Keras/Tensorflow, for Low Complexity Implementations*
2. **Ioana Dogaru, Daniel-Cristian Stan, Radu Dogaru** - *Compact Isolated Speech Recognition on Raspberry-Pi based on Reaction Diffusion Transform*
3. **Alin-Gabriel Cococi, Daniel-Mihai Armanda, Ioana Dogaru, Radu Dogaru** - *Real-time Object Classification and Complexity Evaluation of Lightweight Convolutional Neural Networks on Mobile Computing Platforms*
4. **Andrei Nour, Ioana Dogaru, Radu Dogaru** - *Comparative study of extreme learning machine using various computing platforms.*
5. **Iulian Felea, Radu Dogaru** - *Optimization of Convolutional Neural Networks for Face Recognition Problems Aimed to Resources Constrained Platforms*

SS3 Cyber-Physical Systems for Industrial Applications

Chair Marian Gaiceanu, Dunarea de Jos University of Galati

1. **Marian Gaiceanu** - *Cyber-Physical Systems for Industrial Applications*
2. **Vasile Solcanu, Marian Gaiceanu, Marius Solomon** - *Interference Challenges on board Military Ships*
3. **Vasile Solcanu, Marian Gaiceanu, Alexandru Sotir, Gheorghe Samoilescu, Mircea Constantinescu** - *The results of the electromagnetic field measurements performed on a military ship to determine the effectiveness of a radio-absorbent material*
4. **Iulian Ghenea, Marian Gaiceanu** - *Microgrid Power Infrastructure for Critical Operations*
5. **Iulian Ghenea, Marian Gaiceanu, Razvan Buhosu** - *Microgrid Optimal Power Flow for Increased Security*

6. **Marius Solomon, Marian Gaiceanu, Vasile Solcanu** - *Intelligent Management of the Hot Rolled Steel Sheet. Influence of the Automation System on Hot Rolling Parameters*

SCIENTIFIC AND TECHNICAL SECTIONS

TS1 - *Power Electronics and Electrical Drives*
Chair Mihai Octavian Popescu
Co-Chair: Mihaela Popescu
Secretary: Ion Paraschiv

1. **Alexandru Bitoleanu, Constantin Vlad Suru, Mihaita Linca -** *Fuzzy speed control in drive systems with voltage inverters and induction motors*
2. **Mihăiță Lincă, Mihaela Popescu, Alexandru Bitoleanu -** *The energetic performances of control at constant magnetic flux of an induction traction motor: Part 1 - Performances of control at constant stator flux and constant magnetizing flux*
3. **Mircea Dobriceanu, Gheorghe Eugen Subtirelu, Mihaita Linca -** *System for Acquisition of Energy Parameters for Consumers Without Access to the Low Voltage Line*
4. **Gheorghe-Eugen Subtirelu, Mircea Dobriceanu, Constantin Vlad Suru -** *Intelligent Protection of a Power Supply System for Electric Consumers without Access to the Low Voltage Line*
5. **Constantin Vlad Suru, Mihaela Popescu, Mircea Dobriceanu -** *Compensating Capacitor Voltage Fuzzy Hysteresis Control for a Direct Current Controlled Active Filter*
6. **Nguyen Hoang Viet and Nicolae Paraschiv -** *The Capacitor Voltage Balancing Problem in FS-PTC for Induction Motor fed by 3L-NPC Inverter*

TS2 - *Data & Signal Processing I*
Chair Laurentiu Frangu
Secretary Bogdan Dumitrascu

1. **Alexandru Lodin, Lacrimioara Grama, Corneliu Rusu -** Python Implementation of the State-Space Method to Convert Analog Filters Described by a Netlist to Digital Filters
2. **Alin Bobeica, Ioan Catalin Dragoi, Ion Caciula, Dinu Coltuc -** *Sample Value Ordering for Audio Reversible Data Hiding*
3. **Mircea Weingart -** *Segmentation and Machine Learning Techniques Applied to Automatic Detection of Diseases from Eye-Fundus Retina Images*
4. **Adelina Ion, Steluta Gosav, Mirela Praisler -** Artificial Neural Networks designed to identify NBOMe hallucinogens based on the most sensitive molecular descriptors
5. **Catalin Negoita, Mirela Praisler -** Logistic regression classification model identifying drugs of abuse based on their ATR- FTIR spectra

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TS3 - *Control Engineering I*
Chair Viorel Mînzu
Secretary Cristinel Dache

1. **Viorel Minzu -** *Quasi-optimal Character of Metaheuristic based Algorithms used in Closed Loop*
2. **Mateus Almeida Barbosa, Kübra GÜl, Antoneta Iuliana Bratcu, Iulian Munteanu -** *Management of a photovoltaic-battery-based microgrid in a prosumer context*
3. **Sanda Florentina Mihalache, Madalina Carbureanu -** *Monitoring and Decision Making Support Systems for Activated Sludge Process*
4. **Cătălin Beguni, Sebastian-Andrei Avătămăniței, Alin-Mihai Cailean, Eduard Zadobrischi, Mihai Dimian, Hongyu Guan, Luc Chassagne -** *Toward a mixed visible light communications and ranging system for automotive applications*

5. **Anca Marginean, Raluca Brehar, Mihai Negru -** *Understanding pedestrian behaviour with pose estimation and recurrent networks*

TS4 - *Control Engineering II*
Chair Adrian Filipescu
Secretary Razvan Solea

1. **Georgiana Rosu, Andrei Marinescu, Gheorghe Samoilescu, Octavian Baltag -** *The Efficiency of An Underwater Inductive Charging System for AUVs Based on Truncated Coils*
2. **Dan Ionescu. Trajectory -** *Tracking Cascade Control of a Nonholonomic WMR based on Kinematic and Dynamic Model*
3. **Justin Aurelian Braharu, Razvan Solea -** Trajectory-Tracking First Order Sliding-Mode Control of a WMR
4. **Adrian Filipescu, Adriana Filipescu, Silviu Filipescu, Eugenia Minca -** *Technology on a Mechatronics Line Assisted by Autonomous Robots and Visual Servoing Systems*
5. **Cristian Moldovan -** *Model free control of a 2DOF robotic arm using video feedback*
6. **Alexandru Savulescu, Boris Siro, Cornel Ianache, Liana Georgescu -** *Simulation of the electric drive of a beam pumping unit and its comparative analysis for different operating frequencies*

TS5 - *Circuits and System*
Chair Horia-Nicolai Teodorescu
Co-Chair Viorel Nicolau
Secretary Andrei Mihaela

1. **Horia-Nicolai Teodorescu -** *Analysis of Conchoidal Radiation Collimators and Shields*
2. **Viorel Nicolau, Mihaela Andrei -** *On Noise Estimation of MIMO Wireless Channels for Low-computational IoT devices*
3. **Mihai Pop, Camelia Avram, Claudiu Domuta, Dan Radu, Adina Astilean -** *Route Planning Strategy for Smart Tourism Services Development*
4. **Ali Anil Demircali, Egemen Balban, Abdurrahman Yılmaz, Gizem Melike Cİdal, Hüseyin Üvet -** *Indoor Drone Application with Acoustic Localization*
5. **Ionut Cojocia Flintoaca -** *Analyzing burst communication of diagnostic testers on a modern automotive CAN network*

TS6 – *Power Systems and Software Engineering*
Chair Emil Diaconu, Ioan Marinescu
Secretary Romeo Paduraru

1. **Ioan Marinescu, Horia Andrei, Marilena Stănculescu -** *Electrical equipment safety analysis and simulation. Case study: transformer's malfunctions*
2. **Constantin-Sorin Orboiu, Horia Leonard Andrei -** *Modeling of Pre-University Education Units Electric Energy Consumption*
3. **Lucian Nastase, Horia Andrei, Emil Lungu, Veronica Dulea, Emil Diaconu -** *Modeling, Simulation and Optimization of Dual Heating System*
4. **Alexandru Enescu, Horia Andrei, Valentin Ion, Emil Diaconu, Nicoleta Angelescu -** *Analysis and Modeling of Biomass Plant Energy Efficiency*
5. **Sorin Deleanu, Ioan Marinescu, Marilena Stanculescu, Horia Andrei -** *Study on the Implementation of HVDC for Power System Interconnection*

6. **Horia Balan, Mircea Buzdugan, Radu Adrian Munteanu -** *Study of Bypass Circuits of Power Breakers in High Voltage Direct Current Networks*

TS7 - *Electrical Engineering and Tools*
Chair Florin Constantinescu, Mircea M. Radulescu
Secretary Madalin Costin

1. **Mircea M. Radulescu -** *Novel Spoke-Type Ferrite-Magnet Generators for Micro-Wind Power Applications*
2. **Florin Roman Enache, Florin Constantinescu, Mihai Rață, Gabriel Vătășelu, Valentin Ștefănescu, Dan Milici, Iulian Aramă -** *Frequency Domain Models for Nonlinear Loads with Firing Angle control Devices. Part II – Modeling*
3. **Valentin Velicu, Alexandru Boitan, Vlad Butnariu, Bogdan Trip, Mihai Iulian Rebican, Valentin Ionita -** Experimental Study of Radiated Compromising Emanations for Computer Monitors
4. **Stefan Preda, Marales Răzvan Cristian -** *Consumption Optimization Aspects in Renewal Energy Systems Using Artificial Neural Network*

TS8 - *Electrical Engineering and Tools*
Chair Gelu Gurguiatu
Secretary Madalin Costin

1. **Dusa Alexandru, Balanuta Ciprian Daniel, Gurguiatu Gelu -** *Reactive power compensation for a PV park connected at a long dinstance*
2. **Ion Voncilă, Emil Mina Roșu, Gelu Gurguiatu, Ciprian Daniel Bălănuță -** *The influence of the connecting elements of the three-phase shunt active filters - in the Common Network Connection Point - on the efficiency of the filtering process*
3. **Balanuta Ciprian Daniel, Dusa Alexandru, Gurguiatu Gelu, Luca Laurentiu -** *Reactive power compensation for consumers connected at long-distances*
4. **Gelu Gurguiatu, Ciprian Daniel Bălănuță, Alexandru Dușa, Ion Voncilă, Mariana Dumitrescu, Alexandra Anton, Emil Mina Roșu -** *ACTIVE POWER FILTER CONTROL STRATEGY CHOOSING BY M-TOOL APPLICATION*
5. **Sebastian-Andrei Avătămăniței, Alin-Mihai Cailean, Adrian Done, Alexandru Capitan, Valentin Popa -** Indoor Visible Light Communications demonstration: University Campus Radio Station transmitted through the lighting system
6. **Nguyen Hoang Viet, Nicolae Paraschiv -** *Finite State Predictive Torque Control With Switching Table for Induction Motor Drive*

TS9 - *Intelligent Systems in Industrial Applications*
Chair **Gabriel Murariu**, Ciprian Vlad
Secretary Cristinel Dache

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