

ELMA2017 Program

Session Overview

Thursday, 1 Jun 10:30-12:30

OPENING SESSION

Chair: Prof. V. LAZAROV Co-Chairman of ELMA2017

Location: Hall A

Thursday, 1 Jun 14:00-15:30

A1. ELECTRICAL MACHINES 1

Chair: Prof. Vladimir LAZAROV

Location: Hall A

Thursday, 1 Jun 14:00-15:30

B1. POWER SYSTEMS

Chair: Prof. Valentin KOLEV

Location: Hall B

Thursday, 1 Jun 16:00-17:30

A2. POWER ELECTRONICS

Chair: Prof. Valentin GYUROV

Location: Hall A

Thursday, 1 Jun 16:00-17:30

B2. SPECIAL SESSION „SOLAR ENERGY – INTEGRATION IN THE BUILDINGS AND URBAN ENVIRONMENT”

Chair: Prof. Zahari ZARKOV

Location: Hall B

Thursday, 1 Jun 17:30-18:30

POSTER SESSION 1

Chair: Prof. George TODOROV, Prof. Dimo STOILOV

Location: Lobby

Friday, 2 Jun 09:00-10:30

A3. ENERGY EFFICIENCY AND POWER QUALITY

Chair: Prof. Gilles NOTTON

Location: Hall A

Friday, 2 Jun 09:00-10:30

B3. ELECTRICAL MACHINES 2

Chair: Prof. Bohos APPRAHAMIAN

Location: Hall B

Friday, 2 Jun 11:00-12:30

A4. RENEWABLE ENERGY SOURCES AND DRIVES

Chair: Prof. Bruno FRANÇOIS

Location: Hall A

Friday, 2 Jun 11:00-12:30

B4. NEW MATERIALS, COMPONENTS AND ELECTROTECHNOLOGY

Chair: Prof. Dimitar BOGDANOV

Location: Hall B

Friday, 2 Jun 14:00-15:30

POSTER SESSION 2

Chair: Prof. Zahari ZARKOV, Prof. Ludmil STOYANOV

Location: Lobby

Friday, 2 Jun 16:00-17:30

A5. MANAGEMENT, MARKETING, TEACHING AND E-LEARNING

Chair: Prof. Boris EVSTATIEV

Location: Hall A



ELMA2017 Program

Session

OPENING SESSION

Jun 1, 2017

Location: **Hall A**

**10:30 –11:00 Welcome address by the Rector of the Technical University of Sofia,
*Prof. G. Mihov***

**Welcome address by the President of CEEC,
*Prof. I. Yatchev***

**Welcome address by the Chairman of the Local
Organizing Committee,
*Prof. George Todorov***

**11:00 –12:30 Keynote Presentation
The Bulgarian Electrical Engineering Sector in the
Context of the Forth Industrial Revolution
*Dr. Roumen ATANASOV (BASSEL)***

ELMA2017 Program

Session

A1. ELECTRICAL MACHINES 1

Jun 1, 2017

Location: **Hall A**

1. Design & comparison of a conventional and permanent magnet based claw-pole machine for automotive application

Pranshu Upadhayay, Afef Kedous-Lebouc, Lauric Garbuio, Jean-Claude Mipo, Jean-Marc Dubus

2. Design and Comparison of Outer Rotor Bonded Magnets Halbach Motor with Different Topologies

Amit Kumar Jha, Afef Kedous-Lebouc, Lauric Garbuio, Jean-Paul Yonnet, Jean-Marc Dubus

3. Output Characteristics Analysis of Gensets for Modeling of an Expert System for Fault Detection Purposes

Željko Hederić, Dejan Barešić, Venco Ćorluka

4. Effects of Cogging Torque Reduction Techniques Applied to Surface Mounted PMSMs with Distributed Windings

George Todorov, Bozhidar Stoev, George Savov, Petar Kyuchukov

5. Development of a novel coaxial magnetic gear

Fuat Kucuk, Sadra Mousavi

ELMA2017 Program

Session

B1. POWER SYSTEMS

Jun 1, 2017

Location: **Hall B**

1. The evolutionary optimization approach for voltage profile estimation in a radial distribution network with a decreased number of measurements

Marinko Barukčić, Marko Vukobratović, Dalibor Buljić, Dino Masle

2. HV transmission line stringing operation. Usage of Unmanned aerial vehicles for installation of conductor and OPGW

Karol Pawlak, Dorota Serek

3. Investigation of the Capacitive Interference of Overhead Multi-Line Power System

Atanas Chervenkov, Todorka Chervenkova

4. Analysis of errors in distribution networks power losses calculations with relation to the time discretization intervals

Konstantin-Kiril Savov, Rad Stanev, Petko Stoyanov, Dimo Stoilov

5. Loading Curve Optimization for Electric Networks Efficiency Improvement

Stanislav Eroshenko, Alexandra Khalyasmaa, Zhu Kaihui, Lin Zhixing, Yang Weixiu, Li Shunan

6. The short circuit currents calculations model for integral forecasting of the switching facilities residual life

Alexandra Khalyasmaa, Mihail Senyuk, Stanislav Eroshenko

ELMA2017 Program

Session

A2. POWER ELECTRONICS

Jun 1, 2017

Location: **Hall A**

1. Simulation of air transformers with different sizes and geometry

Dimcho Hvarchilkov, Vladimir Dimitrov, Peter Goranov

2. Modelling of an off – grid photovoltaic power supplying system for telecommunication equipment

Ivan Nedyalkov, Dimitar Arnaudov, Nikolay Hinov, Hristiyan Kanchev

3. Physical Model of an Electric Vehicle for Research of Dynamic Operating Modes

Gergana Vacheva, Nikolay Hinov, Rad, Stanev

4. Two-Stage Low-Frequency Square-Wave Electronic Ballast with Analog and Digital control

V. C. Valchev, V. Chikov, V. Gyurov, and T. P. Todorova

5. Overview of Heat Transfer Aspects for Inductors and Transformers for Power Electronics

Vencislav Valchev

ELMA2017 Program

Session

B2. SPECIAL SESSION „SOLAR ENERGY – INTEGRATION IN THE BUILDINGS AND URBAN ENVIRONMENT”

Jun 1, 2017

Location: **Hall B**

1. Bounded global irradiation prediction based on multilayer perceptron and time series formalism

Cyril Voyant, Gilles Notton, Marie Laure Nivet, Fabrice Motte, Alexis Fouilloy, Christophe Paoli

2. Solar potential for building integrated solar collectors: Application in Bulgaria, Romania & France

Elio Rebillout, Gilles Notton, Andrei Damian, Rodica Frunzulica, Vladimir Lazarov, Ludmil Stoyanov

3. Modeling of PV Panels – Case Study for Oryahovo

Ludmil Stoyanov, Iva Draganovska, Zahari Zarkov, Vladimir Lazarov, Gilles Notton

4. Optimization of the solar thermal collectors integration in buildings for DHW preparation

Andrei Damian, Rodica Frunzulica, Razvan Stefan Popescu, Elio Rebillout, Gilles Notton

5. Tilos, the First Autonomous Renewable Green Island in Mediterranean: A Horizon 2020 project

Gilles Notton, Marie Laure Nivet, Fabrice Motte, Cyril Voyant, Alexis Fouilloy, Dimitris Zafirakis, Christophe Paoli

ELMA2017 Program

Session

POSTER SESSION 1

Jun 1, 2017

Location: **Lobby**

- 1. Comparison between conventional wind measurement systems and Sodar systems for remote sensing including examination of real wind data**
Dmitriy Dubov, Bohos Aprahamian, Meline Aprahamian
- 2. Forecasting software for hourly transmission losses**
Stefan Sulakov
- 3. The cross-border trade impact on the transmission losses**
Stefan Sulakov
- 4. The weather impact on the overhead line losses**
Valentin Kolev, Stefan Sulakov
- 5. Influence of the Tower Construction of Electrical Power Line 110 kV over the Risk of Electrical Field Exposure**
Marinela Yordanova, Mediha Hamza
- 6. A Monte Carlo Algorithm for Determining the Point of Collapse of Power Flow Equations**
Nikolay Nikolaev
- 7. An Algorithm for Fast Determining the Point of Collapse of Power Flow Equations Based on Singular Value Decomposition**
Nikolay Nikolaev
- 8. The Choice of Optimal System Composed of Linear Conductors for Electrostatic Space Protection**
Nebojsa Raicevic, Slavoljub Aleksic, Ana Vuckovic, Mirjana Peric
- 9. The indicators system for the short circuit currents levels assessment in the power systems**
S.A. Eroshenko, A.O. Egorov, M.R. Zagidullin, M. D. Senyuk
- 10. Light Electronic Regulator Based on Open-source Microcontroller Platform**
Hristo Antchev, Eltimir Stoimenov, Vlado Yankov
- 11. Design Considerations of ZVS Converter for Charging of Energy Storage Elements**
Dimitar Arnaudov, Nikolay Hinov, Vencislav Valchev
- 12. Modelling of Single Transistor Parallel ZVS DC-DC Converter**
Nikolay Hinov, Dimitar Arnaudov, George Kraev, Bogdan Gilev

13. Modeling of the behavior of high pressure discharge lamps in circuits with ballast

Simona Petrakieva, Zahari Ivanov

14. Recognition of heat - conductive filling agents of a thermoelectric refrigeration system with Focused Time - Delay Neural Network

Ivaylo Belovski, Sotir Sotirov, Anatoliy Aleksandrov, Nikolay Sotirov

15. Electroenergetical training laboratory with remote access to stands

Alexander Antipin, Vasiliy Frizen, Vladimir Udintcev, Sergei Nazarov

16. A real time street lighting control system

Seher Kadirova, Daniel Kajtsanov

17. Problems and trends in training of electrical engineers

Mariya Marinova, Marin Marinov

18. Some aspects of using real and virtual experiment in teaching electrical engineering

Ilonka Lilyanova, Marin Marinov, Radko Stoianov

19. Model-based Virtual Product Development and Data Control with PLM

Dimitar Jetchev, George Todorov

20. Method of Design Public Key Infrastructure for Secure Audio Information Transmission in Multimedia Systems

Snezhana Pleshkova, Dimitar Kinanev

21. Energy - Efficient Control of Double Inverter-fed Induction Motor

Gennady Tutaev, Maxim Bobrov, Igor Gulyaev

22. Development of an Algorithm for Modal Control of SISO Linear Time-Invariant Discrete Systems

Nikola Nikolov, Mariela Alexandrova, Veselin Lukov

23. Determination of Control Sensor Position in a Clapper Type Electromagnet Using FEM

Ivan Kostov, Stefcho Guninski

24. Cogging torque effect on motor start-up in a sensorless motor drive for permanent magnet synchronous motors

Emil Rachev, Vladislav Petrov, Bozhidar Stoev

25. Application of recursive methods for parameter estimation in adaptive pole placement control of DC motor

Ivan Grigorov, Nasko Atanasov

26. Combined Mobile Robots Motion Control Using Information as Voice and Gesture Commands from Audio and Thermal Visual Sensors

Snezhana Pleshkova, Zahari Zahariev

27. Investigation of the Dielectric Permittivity of Anodic Aluminum Oxide Substrates for Multi-Chip Modules

Svetozar Andreev, Nina Spasova

ELMA2017 Program

Session

A3. ENERGY EFFICIENCY AND POWER QUALITY

Jun 2, 2017

Location: **Hall A**

1. Electrical Loads and Profiles of Public Buildings

Nikolay Matanov, Ivan Angelov

2. Algorithm for Selection of Passive Harmonics Filters

Nikolay Matanov, Haralan Penev

3. Automated Photovoltaic and Lighting Infrastructural System – APhoLIS

Valentin Gyurov, Vladimir Chikov

4. Application of Automated Photovoltaic and Lighting Infrastructural System APhoLIS-Energy Points

Valentin Gyurov, Plamen Kirovski

5. Mathematical and economic extrapolations on the model for optimal microgrid operation and its solution

Vesselina Trashlieva

6. IP-based smart sensors for energy metering and efficient HVAC infrastructure in buildings

Basri Kul

ELMA2017 Program

Session

B3. ELECTRICAL MACHINES 2

Jun 2, 2017

Location: **Hall B**

1. Optimization of medium voltage backup power supply strategies for high power pump aggregates

Vultchan Gueorgiev, Plamen Rizov

2. Influence of the excitation regime of turbo-generators on the own needs supply stability

Plamen Rizov, Vultchan Gueorgiev

3. Design of a Low Permanent Magnet Mass Hybrid Excited Flux Switching Machine for a PHEV Application

Noureddine Faltakh, Franck Vangraefschèpe, Raouf Benlamine, Sami Hlioui, Mohamed Gabsi

4. Torque Ripple Suppression in Surface Mounted PMSMs with Distributed Windings

Bozhidar Stoev, George Todorov

5. Evaluation and different control methods of the transformer noise (Literature survey)

Vili Boteva, Hristo Tsvetkov, Yordan Botev

6. Harmonic Impact Testing on Synchronous Generator Protection

Dimitar Bogdanov, Rosen Iliev

ELMA2017 Program

Session

A4. RENEWABLE ENERGY SOURCES AND DRIVES

Jun 2, 2017

Location: **Hall A**

1. Power Control of PMSG for Wind Turbine Using Maximum Torque per Ampere Strategy

Zahari Zarkov, Boris Demirkov

2. Small Wind Generator System with Non-Inverting Buck-Boost Converter and Battery Storage

Zahari Zarkov, Ivan Bachev, Vladimir Lazarov

3. Experimental Design of Stand-alone Field Oriented Control for WECS in Variable Speed DFIG-based on Hysteresis Current Controller

Fayssal Amrane, Azeddine Chaiba, Bruno Francois, Badreddine Babes

4. Electrical Energy Wireless Transfert: Application to electric roads

Mehdi Rouissiya, Ikram El Abbassi, Bilal Amghar, Alain Jaafari, Moumen Darcherif

5. Critical meteorological conditions and the electrical power balance in Bulgaria

Nelly Harizanova

6. Features in the selection and operation of ac motors for electric propulsion system in ships

Lyubomir Dimitrov, Stefka Kanturska

ELMA2017 Program

Session

B4. NEW MATERIALS, COMPONENTS AND ELECTROTECHNOLOGY

Jun 2, 2017

Location: **Hall B**

1. Piezoelectric Energy Harvesting Device with Nanobranched ZnO on Polymer/Metal/Polymer Coated Flexible Substrate

Georgi Kolev, Mariya Aleksandrova, Georgi Dobrikov, Mileti Fartunkov, Krassimir Denishev, Habib Pathan

2. The study of bulk loading in high-temperature resistance furnaces

Alexander Antipin, Vasilii Frizen, Fedor Tarasov, Fedor Sarapulov

3. Magnetoelectric Position Sensors for Automotive Application

Nikolay Kolesnikov, Sergey Zhiglinsky, Roman Petrov, Mirza Bichurin, Slavcho Bozhkov, Ivan Milenov, Penko Bozhkov

4. Processing Efficiency of Plasma-Aided Porous Media Finishing

Peter Dineff, Dilyana Gospodinova, Ivaylo Ivanov

5. Comparison of the conductors' mechanical mode calculations using different mathematical models

Nikola Nikolov, Dimo Stoilov

ELMA2017 Program

Session

POSTER SESSION 2

Jun 2, 2017

Location: **Lobby**

1. Comparative Study of Electric Car Traction Motors

Emil Sokolov

2. Application of Infrared Thermography Technique in Transformers Maintenance in Distribution Network

Emil Mechkov

3. Ferroresonance Modes Determination of Single-Phase Toroidal Transformers

Emil Cazacu, Lucian Petrescu, Valentin Ioniță

4. Losses and Temperature Rise within Power Transformers Subjected to Distorted Currents

Emil Cazacu, Lucian Petrescu, Valentin Ioniță

5. Monitoring System for Sensorless Energy Characteristics Identification of Inverter-Fed Single-Phase Collector Motor Drive

Dimitar Spirov, Milko Dochev

6. Coupled electric – thermal model for SR-drives

Sorin Cosman, Claudia Martis, Radu Martis

7. Analysis of Permanent Magnet Synchronous Machines Used for Hybrid Vehicles

Plamen Rizov, Tsvetomir Stoyanov, Radoslav Spasov, Vasil Spasov

8. Decision making in transformer manufacturing companies with help of ERP business software

Josip Nađ, Mario Vražić

9. Effect of Static or Dynamic Eccentricities on the Unbalanced Magnetic Pull in Doubly-Fed Induction Machines

Nicolas Moisson-Franckhauser, Thomas Lugand, Alexander Schwery, Lauric Garbuio

10. Harmonic Analysis of the Magnetic Field of a Coaxial Magnetic Gear

Iliana Marinova, Miglenna Todorova, Valentin Mateev

11. Filtration of Deteriorated Signals Used in the Control Systems by Orthogonal Wavelets

Mariyana Todorova, Reneta Parvanova

12. Design of digital PI regulators from experimental frequency response of electrohydraulic steering system

Alexander Mitov, Jordan Kralev, Ilcho Angelov

13. Power and energy parameters of the inductor with an electromagnetic shield

Alexander Antipin, Vasilij Frizen, Fedor Sarapulov, Maksim Kondratev

14. Investigation of a new technology of controlling electrical apparatus via a smart phone

Pavel Andreev, Bohos Aprahamian

15. Dynamic Study of Thermal Characteristics of Linear Induction Motors

F.Sarapulov, V. Frizen, I.Smolyanov, E. Shmakov

16. The importance of standardization for risk management on Seveso site

Maja Ljubić, Božidar Raković, Ljubomir Dimitrov, Slavoljub Aleksić, Ivan Garvanov

17. Induction crucible furnace with dual frequency power supply

Vasilij Frizen, Vladislav Luzgin, Alexander Koptyakov, Kirill Bolotin, Nikolay Tarchutkin

18. Research on the temperature field of a combined device for cooking Zanussi

Yanita Slavova, Maria Marinova, Tatyana Dimova

19. Influence of Cold Air Plasma Treatment on Thermobonded PET Nonwoven Textile

Dilyana Gospodinova, Margarita Neznakomova, Peter Dineff

20. Influence of the Pole Shapes on the Force Characteristics of a DC Solenoid Actuator

Dian Malamov, Ivan Hadzhiev, Ivan Yatchev

21. Studying the Magnetic Field of Three-Phase Induction Device with Split-Phase

Georgi Zhelev, Marin Marinov, Maik Streblau

22. Investigation of the exploitation modes of a special type magnetic separator

Tatyana Dimova, Mariya Marinova, Bohos Aprahamian, Marin Marinov

23. Simulation of the Shading in Photovoltaic Systems

Ludmil Stoyanov, Nelly Cholakova

24. Modelling of Magnetic Concentrators in Induction Heating Systems

Iosko Balabozov, Hartmut Brauer, Ivan Yatchev

25. Modelling of Current Sensor Based on Hall Effect

Mehmet Sen, Iosko Balabozov, Ivan Yatchev, Ratcho Ivanov

26. GPSS Language as Tool for Reliability Simulations

George Popov

27. Diversity in Nature and Technology – Tool for Increase the Reliability of Systems

George Popov, Kamelia Raynova

28. Indoor propagation of signals between wireless sensor nodes

Zlatan Ganev

ELMA2017 Program

Session

A5. MANAGEMENT, MARKETING, TEACHING AND E-LEARNING

Jun 2, 2017

Location: **Hall A**

- 1. Challenges for Bulgarian Industrial Small and Medium sized Enterprises to manage change effectively**
Kiril Anguelov, Miglena Angelova
- 2. Criteria at Selection of Method for Job Implementation Evaluation in High-Tech Enterprises**
Kiril Anguelov, Alexanadar Ferdov
- 3. IoT Implementation for Digital Transformation of Modern High-Tech Organizations**
Roumiana Ilieva, Kiril Anguelov, Violeta Goleshevska
- 4. Real-time Model of Switched Reluctance Drive based on a LUT magnetization curve for Educational Purposes**
Dmitriy Savkin, Alecksey Anuchin, Vasiliy Kulmanov, Igor Gulyaev, Yuriy Vagapov
- 5. Concept for development of 2D virtual reality laboratory in electrical circuits: basic equipment**
Boris Evstatiev, Katerina Gabrovska-Evstatieva
- 6. Development of model for automatic tutor in e-learning environment based on student reactions extraction using facial recognition**
Salma Boumiza, Dalila Souilem, Alexander Bekiarski, Snejana Pleshkova
- 7. The Methodology of Risk Evaluation for Power Equipment Technical State Assessment**
Alexandra Khalyasmaa, Rustam Valiev, Viktor Bolgov