

**XIX-th International Symposium on
Electrical Apparatus and Technologies**

SIELA 2016



PROGRAMME

29 May - 1 June 2016

Hotel Bulgaria

Bourgas, Bulgaria

SIELA 2016 is organized by:



Union of Electronics, Electrical Engineering and Telecommunications (CEEC)



IEEE Bulgaria Section

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Notes

- Oral presentations – up to 15 min including discussions (laptop and multimedia projector available)
- Invited paper presentations – up to 30 min including discussions
- Poster size: 0.8x1.2 m

Information and registration desk

The Information and Registration desk will be open at Hotel Bulgaria as follows:

- Sunday, 29 May - from 17:00 to 19:00
- Monday, 30 May - from 8:30 to 16:00
- Tuesday, 31 May - from 8:30 to 13:00

Phones: (+359) 896 803 915; (+359) 895 588668

Symposium dinner

The Symposium Dinner will be in restaurant “Bulgaria” on Monday, 30 May 2016.

Cultural programme

Boat trip to the Island of St. Anastasia – Wednesday, 01 June

Day	Hour	Event
Sunday 29 May	17:00 - 19:00	Registration
Monday 30 May	9:30 - 11:00	Opening Session, Compass Hall
	11:00 - 11:30	Coffee Break
	11:30 - 12:30	Invited Papers 1, Compass Hall
	13:45 - 15:30	Oral Session O1 , Compass Hall
	15:30 - 16:00	Coffee Break
	16:00 - 17:30	Poster Session P1 , Captain's Hall
	17:30 - 18:30	Oral Session O2 , Compass Hall
	19:30	Symposium Dinner
Tuesday 31 May	9:00 - 10:00	Invited Papers 2, Compass Hall
	10:00 - 11:00	Oral Session O3 , Compass Hall
	11:00 - 11:30	Coffee Break
	11:30 - 13:00	Poster Session P2 , Captain's Hall
	14:00 - 15:30	Oral Session O4 , Compass Hall
	15:30 - 16:00	Coffee Break
	16:00 - 17:30	Poster Session P3 , Captain's Hall
	17:30 - 18:00	Closing Session, Compass Hall
Wednesday 1 June	10:00 - 13:00	Boat trip to the Island of St. Anastasia

INVITED PAPERS 1

Monday, 30 May, 11:30 - 12:30, COMPASS Hall

Masato ENOKIZONO

Japan

How to decrease magnetic power loss for development of high efficiency electric machines

Hartmut BRAUER

Germany

Motion-induced eddy current testing and inspection of non-magnetic material

ORAL SESSION O1

Monday, 30 May, 13:45 - 15:30, COMPASS Hall

Bojan JAKOVLJEVIC, Dejan BAREŠIĆ, Zeljko HEDERIC, Nenad CVETKOVIC

Serbia, Croatia

FEM analysis of single-phase electromechanical meter at non-sinusoidal power supply

Sergey RYVKIN, Gleb ZIBOROV

Russia

Approaches to control design for micro hydropower plant with induction generator

Kamal NOUNOU, Khoudir MAROUANI

Algeria

Control of a dual star induction generator driven wind turbine

Julian WOSIK, Artur KOZŁOWSKI, Bogdan MIĘDZINSKI

Poland

Requirements, design and testing of explosion proof

Faruk ARAS, Yunus BICEN

Turkey

The effect of temperature rise on lifetime of HV power cables in crossing region

Karolina KASAS-LAZETIĆ, Dejana HERCEG, Nikola DJURIĆ, Dragan KLJAJIĆ, Miroslav PRSA

Serbia

Influence of ACSR steel core permeability on conductor's load parameters

Mirjana PERIĆ, Slavoljub ALEKSIĆ, Ana VUČKOVIĆ, Zeljko HEDERIC

Serbia, Croatia

Analysis of shielded edge-compensated microstrip line using hybrid boundary element method

POSTER SESSION P1

Monday, 30 May, 16:00 - 17:30, Captain's Hall

- Emre YILDIZ, Furkan AKAR, Bulent VURAL Turkey
Current ripple minimization of a PEM fuel cell via an interleaved converter to prolong the stack life
- Rahman DASHTI, Mohammad DAISY, Hamid reza SHAKER Iran
A new practical method presentation for locating fault in power distribution networks
- Grigore CIVIDJIAN Romania
Transient thermal field in cylindrical item and shaft
- Ioan POPA, Alin-Iulian DOLAN Romania
Numerical modeling of power cables
- Alin-Iulian DOLAN, Florian STEFANESCU Romania
Exhaustive optimization method based on DOE and FEM applied on a SMES device
- Vasiliy FRIZEN, Eugene SHVYDKIY, Salavat FATKULLIN Russia
Modeling of metal cone heating in indirect induction furnace
- Vasiliy FRIZEN, Eugene SHVYDKIY Russia
Simulation of electromagnetic processes due to metal carbonisation in synthetic cast-iron production
- Bojan DIMITRIJEVIC, Bojana NIKOLIC, Slavoljub ALEKSIC Serbia
Analysis of patch antenna with director in FDTD simulation environment
- Peter DINEFF, Ivaylo IVANOV, Dilyana GOSPODINOVA Bulgaria
Efficiency processing parameter for plasma aided surface impregnation: I. Penetration-spreading parameter
- Peter DINEFF, Ivaylo IVANOV, Dilyana GOSPODINOVA Bulgaria
Efficiency processing parameter for plasma aided surface impregnation: II. Interfacial energy, adhesion tension and capillary pressure
- Peter DINEFF, Ivaylo IVANOV, Dilyana GOSPODINOVA, Romyana STANIMIROVA Bulgaria
Efficiency processing parameter for plasma aided surface impregnation: III. Plasma surface activation
- Mihail DIGALOVSKI, Krste NAJDENKOSKI, Goran RAFAJLOVSKI Macedonia
Stator core condition assessment using stator core test for turbogenerator type TGH-120
- Vlatko STOILKOV, Mihail DIGALOVSKI Macedonia
Stator core condition assessment using stator core test for turbogenerator type TGH-120
- Georgi GANEV, Nikola SHAKEV, Alexander ANGELOV Bulgaria
Design approach of sizing the rooftop photovoltaic plant based on the power consumption
- Mahmoud ABDELSALAM, Sarath TENNAKON, Hatem DIAB United Kingdom
An adaline based capacitor voltage estimation algorithm for modular multilevel converters
- Nikola STOJANOVIC, Negovan STAMENKOVIC, Dragana ZIVALJEVIC Serbia
Analysing second degree op amp RC resonator sensitivity of the time-continuous filter pair
- Dragana ZIVALJEVIC, Nikola STOJANOVIC and Negovan STAMENKOVIC Serbia
Performance improving of quadrature filter bank using group delay equalizer

- Ashraf EL-BARDAWIL, Mona Fouad MOUSSA, Yasser Gaber DESSOUKY,
Samir Yousef MARZOUK Egypt
Power management of open winding PM synchronous generator for unbalanced voltage condition
- Emil MECHKOV, Raina TZENEVA, Valentin MATEEV, Ivan YATCHEV Bulgaria
Thermal analysis using 3D FEM model of oil-immersed distribution transformer
- Kalinka TODOROVA and Stefcho GUNINSKI Bulgaria
Study of eddy currents induced in a conducting object, driving currents in the shock excitation scheme
- Ivan HADZHIEV, Dian MALAMOV, Iosko BALABOZOV, Ivan YATCHEV Bulgaria
Study of electromagnetic field distribution and force characteristics of a DC electromagnetic actuator with T-shaped armature
- Ilona IATCHEVA, Nikolina PETKOVA Bulgaria
Study of electrical insulation in the presence of heterogeneous inclusions
- Linus GELAZANSKAS, Kelum GAMAGE United Kingdom
Managing renewable intermittency in smart grid: use of residential hot water heaters as a form of energy storage
- Miroslav TSVETKOV, Chavdar ALEXANDROV Bulgaria
Software simulator of marine monitoring platform
- Zaharinka GERGOVA, Ilona IATCHEVA Bulgaria
Influence of some design parameters on the performance of powerful reactors
- Zlata CVETKOVIC, Milka POTREBIC Serbia
Stability analysis of plan-parallel electrode systems for electrostatic space protection
- Aneliya TERZOVA, Valentin MATEEV, Iliana MARINOVA Bulgaria
Dynamic characteristics of actuator with ferrofluid
- Valentin MATEEV, Miglenna TODOROVA, Iliana MARINOVA Bulgaria
Transmission torque characteristics of a coaxial magnetic gear
- Miglenna TODOROVA, Valentin MATEEV, Iliana MARINOVA Bulgaria
Permanent magnets for a magnetic gear

ORAL SESSION O2

Monday, 30 May, 17:30 - 18:30, COMPASS Hall

- Korhan CENGIZ, Tamer DAG Turkey
Nearest fixed clustering algorithm (NFCA) for wireless sensor networks
- Tatyana GOLUBEVA, Yevgeniy ZAITSEV, Sergey KONSHIN Kazakhstan
Research of electromagnetic environment for organizing the radio channel of communication of operation control system of earthmoving and construction machines
- Stefan SULAKOV Bulgaria
Forced renewables penetration impact on ohmic transmission losses
- Rad STANEV Bulgaria
A control strategy and operation paradigm for electrical power systems with electric vehicles and distributed energy resources

INVITED PAPERS 2

Tuesday, 31 May, 9:00 - 10:00, COMPASS Hall

- Christian MAGELE Austria
Firefly algorithm for multimodal optimization
- Antonios KLADAS Greece
Advanced materials for electrical machines operating in extreme environments

ORAL SESSION O3

Tuesday, 31 May, 10:00 - 11:00, COMPASS Hall

- Fahid ALGAHTANI, Stanley LUONG, Anthony HOLLAND Saudi Arabia, Australia
Circular Cross Kelvin Resistor test structure for low specific contact resistivity
- Dejana HERCEG, Karolina KASAS-LAZETIC, Platon SOVILJ, Danka ANTIC, Miroslav PRSA Serbia
Measurements of normal static magnetization curve
- V.N.SHOFFA, V.N.CZICZERJUKIN, B.MIEDZINSKI, J.WOSIK, A.KOZLOWSKI Russia, Poland
Miniature contact detector of magnetic field singular points distribution for use under designing of electromechanical device structure
- Vencislav C. VALCHEV, Dimitar D. YUDOV, Daniela MAREVA and Teodora TODOROVA Bulgaria
Design considerations of inductors for induction heating of fluids

POSTER SESSION P2

Tuesday, 31 May, 11:30 - 13:00, Captain's Hall

- Stefan SULAKOV Bulgaria
Forecasting hourly corona losses applying statistical approach
- Marinela YORDANOVA, Margreta VASILEVA, Rositsa DIMITROVA Bulgaria
A methodology for determining the maximum touch voltage in the grounding grids considering the impulse resistance
- Emil PANOV Bulgaria
Rotary theory of the electromagnetic field
- Emil PANOV, Miroslava DONEVA Bulgaria
Variational approach for analysis of transient processes in electric circuits
- Margreta VASILEVA, Neli VELIKOVA, Trayan DIMITROV Bulgaria
Research of atmospheric overvoltages with a reverse discharge
- Vencislav VALCHEV, Teodora TODOROVA, Plamen YANKOV, Alex Van Den BOSSCHE Bulgaria, Belgium
Design considerations and loss analyze of DC chokes
- Vencislav VALCHEV, Teodora TODOROVA, Alex Van den BOSSCHE Bulgaria, Belgium
Comparison and design of power electronics transformers in 25 kHz - 400 kHz range
- Orlin STANCHEV, Alex Van den BOSSCHE, Emilian BEKOV Bulgaria, Belgium
Self-oscillating gate driver used for Gallium Nitride transistors in high frequency applications
- Orlin STANCHEV, Angel MARINOV, Emilian BEKOV Bulgaria
Experimental analysis of energy transfer of piezoelectric polymer transformers
- Borislav DIMITROV, Angel MARINOV Bulgaria
Modelling, analysis and verification of a resonant LLC converter as a power supply for the electromagnetic driving mechanism of an electromagnetic contactor
- Angel MARINOV, Alex Van den BOSSCHE, Anton GEORGIEV, Borislav DIMITROV Bulgaria, Belgium
Modelling, analysis and comparison of heatsink designs with improved natural convection
- Plamen YANKOV, Vencislav VALCHEV, Alex Van den BOSSCHE Bulgaria, Belgium
Comparison of multiple stage braking circuits for wind driven generators
- Anton GEORGIEV, Nikolay NIKOLOV, Toncho PAPANCHEV Bulgaria
Maintenance process efficiency when conduct reliability-centered maintenance of complex electronic systems
- Anton GEORGIEV, Toncho PAPANCHEV, Nikolay NIKOLOV Bulgaria
Reliability assessment of power semiconductor devices
- Radko STOYANOV, Angel MARINOV, Orlin STANCHEV, Vencislav VALCHEV Bulgaria
Reducing switching losses of a PFC boost converter using Matlab Simulink pretesting
- Vladimir TODOROV, Bohos APRAHAMIAN, Hristofor TAHRILOV Bulgaria
Applicability of peristaltic pumps in installations for vegetable oils processing
- Yanita SLAVOVA, Mariya MARINOVA Bulgaria
An approach for graphical optimization of electric hot plates efficiency

Rosen SPIROV, Neli GRANCHAROVA Digital image processing explorer on FPGA	Bulgaria
Pavel ANDREEV, Bohos APRAHAMYAN Safety system for handling medium and high voltage apparatus	Bulgaria
Emil ROSENOV, Dimitar KOVACHEV, Angel MARINOV, Nikolay NIKOLOV Comparison between passive and active voltage probes in power loss measurements for power electronic components	Bulgaria
Yulian RANGELOV, Angel MARINOV, and Nikolay NIKOLAEV Measurement and data logging system for specialized high voltage equipment	Bulgaria
Yulian RANGELOV, Nikolay NIKOLAEV The EN61850 standard - communication networks and automation systems from an engineering point of view	Bulgaria
Yulian RANGELOV, Nikolay NIKOLAEV New approach for laboratory exercises for students in major electric power engineering	Bulgaria
Tatyana DIMOVA, Mariya MARINOVA, Bohos APRAHAMIAN Assessment of the influence of the magnetic filter type on the magnetic field of a separator	Bulgaria
Tatyana DIMOVA, Mariya MARINOVA, Bohos APRAHAMIAN Investigation of the magnetic field of a separator with specific configuration of the magnetic filter	Bulgaria
Nadezhda TSVETKOVA, Ilona IATCHEVA, Hristofor TAHRILOV, Maik STREBLAU Study of the relationship between the distribution of the power and temperatures in a small resistive art glass melting furnace	Bulgaria
Georgi ZHELEV, Marin MARINOV An approach to account for losses in the three-phase induction device	Bulgaria
Vultchan GUEORGIEV Optimization of lighting distribution of office luminaires	Bulgaria
Ludmil STOYANOV, Vladimir LAZAROV Study of transient processes during imperfect coupling of synchronous generator to the electrical grid	Bulgaria

ORAL SESSION 04

Tuesday, 31 May, 14:00 - 15:30, COMPASS Hall

Dimitar YUDOVOV, Vencislav VALCHEV, Daniela MAREVA Emergency procedures in inverter for induction heating of fluids	Bulgaria
Hatem DIAB, Sarath TENNAKON, Mahmoud ABDELSALAM A current flow control apparatus for meshed multi-terminal DC grids	United Kingdom
Fahid ALGAHTANI, Stanley LUONG, Anthony HOLLAND A comparison of the tri-layer transmission line model and a finite element model for Ohmic contacts	Saudi Arabia, Australia
Furkan AKAR A high-efficiency bidirectional non-isolated multi-input converter	Turkey
Elissaveta GADJEVA, Marin HRISTOV Application of standard circuit simulators for optimal design of electronic circuits	Bulgaria
Yasin TALAY, Oktay AYTAR A 10 bit semi flash analog-to-digital converter using FAT tree based encoder	Turkey

POSTER SESSION P3

Tuesday, 31 May, 16:00 - 17:30, Captain's Hall

- Rexhep SHAQIRI, Dimitar BOGDANOV, Erdet NASUFI Bulgaria, Kosovo
Model for estimation the effects of new generators connected to existing distribution network of Kosovo
- F. GONZALEZ-LONGATT, A. BONFIGLIO, R. PROCOPIO, D. BOGDANOV UK, Italy, Bulgaria
Practical limit of synthetic inertia in full converter wind turbine generators: simulation approach
- D. BOGDANOV, N. HARIZANOVA, F. GONZALEZ-LONGATT Bulgaria, UK
Model for estimating reliability of communication channels in relay protection system
- Dimitar BOGDANOV, Georgi DIMITROV, F. GONZALEZ-LONGATT Bulgaria, UK
Improving the reliability of busbar protection system with IEC 61850 GOOSE based communication
- Petko MASHKOV, Berkant GYOCH, Rostislav KANDILAROV, Hristo BELOEV, Tamara PENCHEVA Bulgaria
LED lamp with spectral characteristics suitable for application in greenhouses
- Petko MASHKOV, Berkant GYOCH, Rostislav KANDILAROV, Hristo BELOEV, Tamara PENCHEVA Bulgaria
LED lamp for application in medical centers design and thermal management
- Rostislav KANDILAROV Bulgaria
Digitally controlled 4-channel constant current source for LED luminary based on PIC microcontroller
- Dimitar ARNAUDOVS, Nikolay HINOV, Stoyan VUCHEV, Ivan NEDYALKOV Bulgaria
Converter with galvanic isolation for supercapacitor charging
- George KRAEV, Dimitar ARNAUDOVS, Nikolay HINOV, Nikolay RANGELOV, Bogdan GYLEV Bulgaria
Serial ZVS DC-DC converter for supercapacitor charging
- Dimitar MINCHEV, Atanas DIMITROV Bulgaria
Ultrasonic sensor explorer
- Gergana VACHEVA, Nikolay HINOV Bulgaria
Modeling of the processes in the propulsion system of an electric vehicle
- Daniela OROZOVA, Milena GEORGIEVA Bulgaria
Model of bigdata process with generalized net
- Kostadin MILANOV, Mihaela SLAVKOVA, Hristo ANCHEV Bulgaria
Thyristor control driver with composite transformer
- Nikolay GOUROV Bulgaria
Diverter switch switching velocity measurement
- I. BELOVSKI, A. ALEXANDROV, N. SOTIROV, S. SOTIROV Bulgaria
Prediction of the parameters of the thermoelectric cooling systems based on Peltier elements with neural network
- Todor PETKOV, Krasi PANAYOTOVA, Sotir SOTIROV Bulgaria
Generalized net model of encrypting message in an image using Self Organizing Map Neural Network
- Lenko ERBAKANOV, Krassimir ATANASSOV, Sotir SOTIROV Bulgaria

Modeling a logic gates and circuits with generalized nets - continued

- Penka GEORGIEVA Bulgaria
A genetic fuzzy system for asset allocation
- Svetlana LESIDRENSKA Bulgaria
Methodological aspects of the evaluation of the economic stability of the manufacturing plant development
- Svetlana LESIDRENSKA Bulgaria
Forecasting possible crisis situation as a sub-system of the pro-active anti-crisis management in production company
- Roumiana ILIEVA, Kiril ANGUELOV, Delyana GASHUROVA Bulgaria
Monitoring and optimization of e-services in IT service desk systems
- Kiril ANGUELOV, Dimo STOILOV Bulgaria
Risk based asset management of electrical distribution network
- Kiril ANGUELOV, Miglena ANGELOVA Bulgaria
Methodology for evaluation effectiveness and efficiency in management of IT-projects
- Malinka IVANOVA Bulgaria
Technology Landscape in MOOCs platforms
- Dimo STOILOV, Velichko ATANASOV, Ivan ZAGORCHEV Bulgaria
Assessment of electric energy losses aiming at detection of thefts of electricity
- Maja LJUBIC, Bojidar RAKOVIC, Ljubomir DIMITROV, Ivan GARVANOV Serbia, Bulgaria
Design and optimisation of technologies, selection of materials for reducing risk in the workplace
- Maja LJUBIC, Bojidar RAKOVIC, Ljubomir DIMITROV, Ivan GARVANOV Serbia, Bulgaria
Training of workers as an important safety measures for risk managment
- Ivan GARVANOV, Christo KABAKCHIEV, Vera BEHAR, Panayot DASKALOV Bulgaria
Air target detection with a GPS forward-scattering radar
- Ilonka SAYKOVA, Blagoi STOILOV Bulgaria
Pulsed electric field processing of plant tissues: mathematical modeling of mass transfer



SIELA 2016 symposium will be held in hotel Bulgaria