

PROCEEDINGS

of the
5th International Conference on Modern Power Systems



28 – 31 of May 2013
Cluj – Napoca, Romania

Organized by:



Technical University of Cluj-Napoca

Faculty of Electrical Engineering



Electrica Distribuție Transilvania Nord SA



Transelectrica SA – Romanian TSO

With the support of:



Institute of Electrical and Electronics Engineering
Power and Energy Society
Romanian Section



CIGRE Romanian National Committee – CNR-CIGRE

COPYRIGHT INFORMATION

Proceedings of the 5th International Conference on Modern Power Systems

No part of this publication may be reproduced, stored or transmitted in any form or by any means without prior written permission from the editors.

Additional copies of the Conference Proceedings are available from:

MPS 2013 CONFERENCE SECRETARIAT

Technical University of Cluj-Napoca
Faculty of Electrical Engineering
Str. G. Baritiu 26-28, 400027 Cluj-Napoca, ROMANIA
Phone: + 40.264.401.244
Fax: + 40.264.592.903
Email: mps@et.utcluj.ro

All rights reserved

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

Printed by **S.C. MEDIAMIRA S.A. Cluj-Napoca**
Cp 117, op 1, Cluj-Napoca
Str. Iuliu Maniu 26
400095 Cluj-Napoca, Romania

Edited by **Prof. dr. eng. Calin MUNTEANU**, Technical University of Cluj-Napoca
Prof. dr. eng. Mircea CHINDRIS, Technical University of Cluj-Napoca
Assoc. Prof. dr. eng. Andrei CZIKER, Technical University of Cluj-Napoca
Assoc. Prof. dr. eng. Laura GRINDEI, Technical University of Cluj-Napoca

Copyright Technical University of Cluj-Napoca
Faculty of Electrical Engineering
Str. G. Baritiu 26-28, 400027 Cluj-Napoca, ROMANIA

FOREWORD

The 5th edition of the International Conference on Modern Power Systems, MPS 2013, will take place at the Grand Hotel Napoca from Cluj-Napoca, Romania. The main purpose of the Conference is to throw a bridge between recent advances of research on modern power systems. Therefore, beside the traditional sessions focusing on the progress of the theoretical research, an important stress will be paid on the advanced industrial applications and solutions.

Following the previous four editions of the Conference in 2006, 2008, 2010 and 2011, this year the Scientific Advisory Committee selected 107 papers grouped on 8 main topics. All the accepted papers will be published on a special issue of Acta Electrotehnica Journal edited by Faculty of Electrical Engineering under the patronage of the Romanian Academy of Technical Sciences.

On behalf of the Local Organizing Committee we would like to express our gratitude to the Scientific Advisory Committee, to the reviewers who have ensured the high quality of the papers selected, as well as to the chairpersons of the sessions and the organizers of the technical exhibition. We would like to thank also to our partners FDEE Electrica Distributie Transilvania Nord SA and CNTEE Transelectrica SA, to our Sponsor Companies and to all those who in one way or another have made MPS 2013 possible.

We truly trust that MPS 2013 will be a fruitful professional experience for everyone, and take this opportunity to welcome you in Cluj-Napoca, a beautiful City called “The Heart of Transylvania”.

Prof. dr. eng. Calin MUNTEANU

Prof. dr. eng. Mircea CHINDRIS

Honorary Committee

| | |
|-----------------|---------------------------------------------------|
| Aurel VLAICU | Rector, Technical University Cluj-Napoca, Romania |
| Ioan ROSCA | General Manager, ELECTRICA SA, Romania |
| Stefan GHEORGHE | General Manager, TRANSELECTRICA SA, Romania |

Scientific Advisory Committee

| | |
|---------------------------|----------------------------------------------------|
| Hermina ALBERT | ISPE SA, Romania |
| Berthold BITZER | South Westphalia University, Germany |
| Constantin BULAC | “Politehnica” University of Bucharest, Romania |
| Gianfranco CHICCO | Politecnico di Torino, Italy |
| Mircea CHINDRIS | Technical University of Cluj-Napoca, Romania |
| Andrei CZIKER | Technical University of Cluj-Napoca, Romania |
| Valeriu DAVID | “Gh. Asachi” Technical University of Iasi, Romania |
| Johan DECONINCK | VUB University of Brussels, Belgium |
| Sorin DELEANU | Northern Alberta Institute of Technology, Canada |
| Gilbert DE MEY | University of Gent, Belgium |
| Sylvie BARANOWSKI | Science and Technology University of Lille, France |
| Ciprian DIACONU | CNTEE Transelectrica SA, Romania |
| Mircea EREMIA | “Politehnica” University of Bucharest, Romania |
| Eugenio GARCIA MORENO | University of Balearic Islands, Spain |
| Nicolae GOLOVANOV | “Politehnica” University of Bucharest, Romania |
| Vassilis HATZIATHANASSIOU | “Aristotle” University of Salonic, Greece |
| Mihai IORDACHE | “Politehnica” University of Bucharest, Romania |
| Aneta HAZI | “Vasile Alecsandri” University of Bacau, Romania |
| Marcel ISTRATE | “Gh. Asachi” Technical University of Iasi, Romania |
| Octavian LOHAN | CNTEE Transelectrica SA, Romania |
| Virgil MAIER | Technical University of Cluj-Napoca, Romania |
| Andrei MARINESCU | ICMET Craiova, Romania |
| Calin MUNTEANU | Technical University of Cluj-Napoca, Romania |
| Petre NICOLAE | University of Craiova, Romania |
| Sorin PAVEL | Technical University of Cluj-Napoca, Romania |
| Ioan T. POP | CNTEE Transelectrica SA, Romania |
| Petru POSTOLACHE | “Politehnica” University of Bucharest, Romania |
| Renato RIZZO | “Federico II” University of Naples, Italy |
| Antoni SUDRIA I ANDREU | “Politehnica” University of Catalunya, Spain |
| Andreas SUMPER | “Politehnica” University of Catalunya, Spain |
| Ioan TARNOVAN | Technical University of Cluj-Napoca, Romania |
| Dumitru TOADER | “Politehnica” University of Timisoara, Romania |
| Vasile TOPA | Technical University of Cluj-Napoca, Romania |

CONTENTS

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Afanasov Ciprian, Hopulele Eugen, Mandici Leon, Rață Mihai Step-Down Voltage Converter | 1 |
| Ambros Tudor, Burduniuc Marcel Magnetic Field off the Hermetic Asynchronous Motor | 6 |
| Antonescu Oana Simona, Munteanu Calin Numerical Analysis of Disturbances on Overhead Lines | 10 |
| Ardeleanu Mircea-Emilian Aspects Regarding the Usage of Color Codes for Defining the Levels of Risk in the Correct Functioning of the Power Distribution Networks | 16 |
| Atănăsoae Pavel, Pentiuc Radu, Hopulele Eugen Support Schemes for Promoting Renewable Energy Sources | 20 |
| Avram Alexandru, Topa Vasile, Purcar Marius, Munteanu Calin An example of aplying extended finite element method for the optimisation of the electrical devices | 24 |
| Ioana Moldovean(Avram), Andrei Căținean, Titus Crisan, Ioan Târnovan Analysis of the Electromagnetic Field Modeling on Optic Fibers Using Comsol | 29 |
| Bălan Daniel Intelligent Management Of Smart Electricity To Household Consumption, In The Future Smart Grid | 33 |
| Balan Horia, Buzdugan Mircea, Chiorean Cristina, Varodi Traian Dynamic Time Warping – a Modern Diagnosis Method for Power Switches | 39 |
| Balan Horia, Buzdugan Mircea, Pop Adrian Augustin, Chiorean Cristina Reducing Short-Circuit Current in Continuous Voltage Networks Through Hybrid Commutation | 45 |
| Banu Ioan Viorel, Beniugă Răzvan, Istrate Marcel Study on Temperature for Modeling of Photovoltaic Solar Array using Experimental Test Data | 51 |
| Beniugă Oana, Beniugă Răzvan, Kováč Karol Electromagnetic Compatibility Problems Involved by ESD Magnetic Field Radiation | 55 |
| Beniugă Răzvan, Banu Ioan Viorel, Istrate Marcel Behavior of Doubly-Fed Induction Generator Wind Turbines with Crowbar System during Grid Faults | 59 |
| Bîrsan Ionut Ciprian Theoretical and Experimental Studies on the Supply of Three-Phase Induction Motor Single Phase Regime | 64 |
| Bobean Crina, Pavel Valentina, Vădan Ioan The Use of a Thermoelectric Generator with Natural Convection Cooling on a Domestic Wood Stove | 69 |

| | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Botezan Aurel, Vadan Ioan, Stefanescu Silviu Grid connection of small hydropower plant | 73 |
| Buda Constantin, Mureşan Marius Ioan, Roman Cristina Gabriela, Guja Simona Ileana, Tămaş Adrian Overcurrent Protections Analysis Using Palladin Design Base Software | 78 |
| Buda Constantin, Chis Sorin, Lendeczki Gavril SCADA System Implementation at S.C. Electrica Distributie Transilvania Nord SA | 83 |
| Cristina Chiorean, Mircea Radulescu Testing the Performance of EMI Filters Used in Connecting Renewable Energy Sources to the Power Grid | 87 |
| Chiorean Cristina, Balan Horia Multilevel Converter with Low Distortion Factor for Connecting Renewable Energy Sources to the Power Grid | 93 |
| Ciugudeanu Călin, Buzdugan Mircea, Ciugudeanu Nicolae, Pagu Florian Implication of Increasing Single Phase Short Circuit Currents on the Thermal Stability of High Voltage Overhead Lines Elements | 99 |
| Ciugudeanu Călin, Beu Dorin Benefits of Using Passive Tubular Daylight Guidance Systems and Electrochromic Windows for the Commercial/Office Buildings in Romania | 105 |
| Craciun Daniel, Gheorghe Gabriel Commissioning and Connection of the Photovoltaic Systems in the Distribution Network | 111 |
| Cziker Andrei, Chindris Mircea, Miron Anca Quantification of Unbalanced Harmonic Distorted Operating State | 115 |
| Czumbil L., Ceclan A., Micu Dan D., Şteţ D., Erchedi M., Hanc S., Martineac C., Radu I., Demean A. On Some Mitigation Solutions for an Electromagnetic Interference Problem Analysis in Underground Cables | 120 |
| Damian Claudiu, Tirnovan Radu, Bica Dorin, Osan Marian Solutions for Updating the Scada Systems, Realised in Different Time Stages and on Different Programme Platforms | 126 |
| Dan Cristian, Morar Roman Determining Insulation Condition of High Voltage Instrument Transformers using Gas Chromatography, "Partial Discharge are the electrical equivalent of the trivial rust" | 130 |
| Dan Cristian, Morar Roman Partial Discharge Measurements on 110kV Instrument Transformers. Case Studies. Results | 136 |
| Dan Cristian Actual Techniques of Intervention on 20kV Overhead Lines. Energetic and Economic Rentability | 141 |
| Dănilă Elena, Lucache Dorin Dumitru Autonomy Improvement of Data Center Backup Sources with Supercapacitors | 147 |

| | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Danubianu Dragos Mircea, Danubianu Mirela Data Mining Applications for Power Systems. An Overview | 152 |
| Deleanu Sorin, Carpenter David, Yaremko William, Von Lipinski Gregory, Galan Neculai Comparison of Induction Machine Parameter Determination Methods and the Impact on Steady State Performances | 156 |
| Demeter A. Ş., Albu C., Cherecheş R. L., Ţopa V., Deconinck J. A Simplified Model of Natural Convection for Localized Galvanic Corrosion Simulation | 164 |
| Djuric Nikola, Kljajic Dragan, Kasas-Lazetic Karolina, Prsa Miroslav Test Implementation of the Serbian Monitoring Network – SEMONT | 167 |
| Dobrean Daniel, Toth Tamas Robert, Pleşa Călin, Morar Roman Separating the Copper Ashes on Corona Separator Using the Insulated Grounded Cylinder | 171 |
| Dragomir Marian, Machidon Dragos, Beniuga Razvan One-end Data Fault Location Algorithm for Transmission Grids | 175 |
| Dumitraşcu Daniel-George, Bălan Horia-Cornel Using Artificial Neural Networks for the Detection of Power System Oscillations | 179 |
| Dumitraşcu Daniel-George, Hosu Ciprian, Bărburaş Ioan, Petrovan Tudor, Bălan Horia-Cornel Synchrophasors Used for Islanding Detection – A Real Case Study | 185 |
| Erchan Teodor Analysis of Single-Ended Mode and Phenomena that Can Occur in Electrical Circuits | 190 |
| Georgescu Ovidiu, Moldovan Catalin, Jeflea Ioan, Marchievici Eduard Comparative review between project solution and real operating conditions regarding the voltage drops for photovoltaic park case from Chirileu | 193 |
| Gheorghevi Marius, Bechet Paul, Miclaus Simona, Mitran Radu An Automated Electromagnetic Field Monitoring System Based On Spectrum Analyzer | 199 |
| Grigoraş Gheorghe, Scarlatache Florina, Bărbulescu Cecilia Analysis of Incidents Caused by Human Factor in Transmission Power Grids | 204 |
| Grigoraş Gheorghe, Scarlatache Florina, Bărbulescu Cecilia Optimal Power Flow Analysis Using the Correlation Method for Estimation of Nodal Loads | 208 |
| Hebedean Claudia, Munteanu Calin, Racasan Adina, Pacurar Claudia Eliminating Parasitic Capacitance from EMI Filters with an Embedded Ground Layer | 213 |
| Huang Tao, Purcarea Anca Alexandra, Voronca Simona Louise, Cremenescu Mihai, Wu Yingjun General Overview on the Societal and Technical Impacts of Blackouts | 219 |
| Ionescu Octavian, Dragomir Orhei, Enache Razvan The Management of Electrical Energy Consumption in Biogas Production Plants | 226 |
| Iordache Mihai, Dumitriu Lucia, Galan Nicolae, Nicolae Dragos, Calomfirescu Ileana Saturation Influence on Induction Motor Working in Steady-State Behavior | 229 |

| | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Iudean D., Munteanu jr. R., Zaharia V., Muresan C., Arion M. Influence of Parasite Vibrations on the Electromagnetic Forces of a Permanent Magnet Synchronous Motor | 233 |
| Joian Radu, Petruș Dorin, Palaghiță Niculaie, Horgoș Mircea Algorithms for Management of Wind Energy | 237 |
| Kerbouai Hamza, N'Diaye Abdoul, Bouquain David, El Moudni Abdellah, Srairi Salim Inductance Calculation for Rectangular Loop with Vehicle Presence | 240 |
| Kljajic Dragan, Djuric Nikola, Kasas Lazetic Karolina, Bajovic Vera In-situ EM Field Observation in the SEMONT Monitoring System | 246 |
| Lucaci Dorin, Homan Calin Distributed Generation Methods DG Using Renewable Resources | 249 |
| Lup Aurel-Sorin, Ciuprina Gabriela Analysis of Membrane Perforations on the RF Behavior of Capacitive MEMS Switches | 252 |
| Machidon Dragos, Istrate Marcel Power Station Protection Zones Estimation Using the Rolling Sphere Method and the Elliptic Model | 256 |
| Maier Virgil, Pavel Sorin Gh., Polec Victoria F., Fărcaș Vasile, Beleiu Horia G. The Analytical Optimum of the Demanded Currents Total Moment for a Radial Distribution Network | 262 |
| Marinescu Andrei EMF Issues Related to Inductive Contactless Power Transfer | 268 |
| Marinescu Andrei, Radulescu Mihai, Golovanov Nicolae Automatic Voltage Regulation at Extended Low Voltage Public Networks | 273 |
| Martis Claudia Multiphysics Design and Analysis of Electrical Machines for Automotive Applications | 278 |
| Mihai Cătălin, Sangeorzan Livia, Helerea Elena Applying Descriptive Statistics to Characterize Voltage Variations in Electrical Networks | 284 |
| Milici L. Dan, Cernomazu Dorel, Milici Mariana R., Kint Bert, Keersebilck Philip To Use a Microcontroller System in a Home Energy Management | 290 |
| Miron Anca, Chindriș Mircea, Cziker Andrei Time Domain Analysis of Voltage Dips/Swells in Modern Power Networks | 295 |
| Moașa Beatrice, Helerea Elena, Ursachi Corneliu Electrostatic Discharges and Communication Cables Immunity | 302 |
| Mondoc Bogdan, Ciugudeanu Călin, Kovács Benedek-Sándor, Pop Florin Building Integrated Photovoltaics, Tubular Daylight Guidance and Small Wind Electric Systems in Residential Buildings in Cluj-Napoca: Concept and Design Considerations | 308 |
| Munteanu Mihai, Micu D., Bechet Paul Gabor Transform Applied for Signal Processing | 313 |

| | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Neagu Bogdan Constantin, Georgescu Gheorghe A New Tool for Load Monitoring of Consumers Supplied from Public Distribution Networks | 318 |
| Nicolae Petre-Marian, Nicolae Ileana-Diana, Sîrbu Ioana-Gabriela, Smărăndescu Ionuț-Daniel, Stroe Andreea On Designing and Simulation of a Synchronous Motor for Industrial Applications using Specialized Software Tools | 324 |
| Nițan Ilie, Ungureanu Constantin, Olariu Elena-Daniela, Cernomazu Dorel Analysis of an New Electromechanical Actuator Type with Limited Movement | 330 |
| Nuca Ilie, Cazac Vadim Performance of Injection Molding Machine with Induction Heating System | 336 |
| Onet Oana L., Tirnovan Radu, Paire Damien, Gaillard Arnaud Decentralized Control for Hybrid Systems Comprising Renewable Sources, Batteries and Fuel Cell | 340 |
| Oșan Marian, Tîrnovan Radu, Damian Claudiu, Pop Dumitru Optimizing the Ancillary Services of Power Station Modern Solution for Supplying the Ancillary Service | 346 |
| Păcurar Claudia, Topa Vasile, Răcășan Adina, Munteanu Călin, Hebedean Claudia Spiral Inductor Analysis using the CIBSOC Software Program | 351 |
| Pavel Sorin G., Maier Virgil, Beleiu Horia G., Nedelcu Speranța, Fărcaș Vasile Theory and Practice in Voltage Slow Variations | 357 |
| Pavel Valentina, Bobean Crina, Vadan Ioan Modeling of a Micro Compressed Air Energy Storage System | 365 |
| Plesa Calin, Morar Roman, Hebedean Claudia, Toth Robert, Daniel Dobreanu Influencing Factors of Metal Oxide Electrodeposition from the Quartz Sand Used in Porcelain Industry | 370 |
| Pocan Ioan, Tulbure Adrian, Muntean Calin Procedure to Reduce the Conducted Emissions Generated by an Built-In Module | 374 |
| Pop Dumitru, Neamt Liviu, Tirnovan Radu, Sabou Dorin Analysis of an Electrical Arc in a Low Voltage Miniature Circuit Breaker | 378 |
| Pop Ioan T., Munteanu Calin, Topa Vasile, Racasan Adina The Study of the Electric and Magnetic Field Distribution inside the Recently Rehabilitated 400 kV Gadalin Substation | 382 |
| Popescu Victor, Popa Alexandru, Bantaș Roman Reliability Analysis of Systems for the Distribution of Electricity | 387 |
| Prodan Cristina, Rață Gabriela, Rață Mihai, Ungureanu Constantin Study on Harmonic Analysis of Hourly Index Code Signals | 390 |
| Racasan Adina, Munteanu Calin, Topa Vasile, Pacurar Claudia, Hebedean Claudia Filters for Conductive Electromagnetic Interference Suppression with Planar Electromagnetic Technology | 394 |

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Radu Razvan-Andrei, Ceclan Andrei, Erchedi Michael, Micu D. Advanced Studies on the Effect of Power Transformers Inrush Current Over the Optimization of Medium Voltage Feeder Protection | 402 |
| Rodean Ioan, Morar Daniel, Baci Mircea The Modern Technologies in Preventive Maintenance Applied In TPG | 406 |
| Rusu Ioan The Electrostatic Model of Gravity | 411 |
| Sabou Dorin, Pop Dumitru Dan, Tirnovan Radu Methods for Determining the Effective Capacity of Lead-acid Calcium Batteries, at Different Discharging Currents | 419 |
| Sacerdotianu D., Hurezeanu I., Nicola M., Velea F., Purcaru I. Portable Digital Equipment for Diagnosing the Condition of On-Load Tap Changers from the Transformer Substations | 425 |
| Silion Ștefan, Lovin Ana-Maria Detection of Human Presence in the Car by Measuring Infrared Temperature Changes | 429 |
| Silvaș Ioan, Federenciuc Dumitru, Moraru Madalina Modernisation of electrical distribution networks in the Smart Grids concept - business development opportunity on the European energy market | 433 |
| Stanciu Nicolai, Stănescu Dorel, Postolache Petru, Szabo Willibald Choice of Instrumentation for Measuring / Monitoring PQ Parameters. A Case Study | 439 |
| Stănescu Carmen, Lisman Cătălin, Postolache Petru, Mureșan Gheorghe, Sârb Mihai The Power Quality Monitoring System of Transmission Power Grid | 444 |
| Stanescu Dorel , Dragosin Monica, Chindris Mircea Power Quality Evaluation in Medium Voltage Networks | 449 |
| Stănescu Dan-Gabriel, Nicolae Marian-Ștefan, Nicolae Petre-Marian The Control Strategies to Improve Dynamic Performances in Induction Motor Drive Systems | 454 |
| Stanic Mircea, Miclaus Simona, Bechet Paul Near Field Level Assessment of Portable Radiocommunication Equipment for Occupational Exposure Purposes | 459 |
| Stativă Andrei, Gavrilaș Mihai Optimal Design of Multi-Input Speed Based Power System Stabilizer using Genetic Algorithm | 464 |
| Șteț D., Czumbil L., Erchedi M., Hanc S., Ancăș L. Electromagnetic Interference Issues in Case of Metallic Structures | 470 |
| Theodosoglou I., Chatzipanagiotou P., Chatziathanasiou V. Measurement and Calculation of Thermal Characteristics of an Overhead Power Line | 474 |
| Țilea Ioan, Munteanu Calin Motor Terminal Overvoltage Suppression in Inverter Driven Motors | 478 |
| Tirnovan Radu, Breaz Elena, Pop Dan, Munteanu Radu Thermal Behavior Of A Proton Exchange Membrane Fuel Cell | 482 |

| | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Toader C., Golovanov N., Postolache P., R. Porumb Fl., Bulac C., Triștiu I. Standby Loss of Electronic Devices in a Home | 486 |
| Toader Dumitru, Blaj Constantin, Ruset Petru, Hategan Ioan Dorin Automatic Adjustment System for the Ground Leakage Coil from Medium Voltage Networks | 491 |
| Turcu Antoniu, Balan Horia, Stefan Elena, Stefanescu Silviu Electric Arc Welding Equipment's Testing in Accordance with 2006/95/CE Low Voltage Directive | 496 |
| Turcu Antoniu, Balan Horia, Pop Adrian Augustin, Stefanescu Silviu Insulation Resistance Testing Procedures | 502 |
| Ungureanu Ștefan, Cziker Andrei Adapting the Industrial Consumer for the Smart Grid | 508 |
| Ursachi Corneliu, Helerea Elena, Moașa Beatrice, Călin Daniel Switchmode Power Supply Immunity Test to Radio Frequency Disturbances | 513 |
| Vaida Teodor Ioan, Bălan Horia, Pop Dumitru Dan, Sabău Mădălina Sabina Computer Aided Relay Testing for Didactic Purpose | 519 |
| Varodi Traian, Balan Horia, Pop Adrian Augustin, Monitoring 110/10kV Power Stations. A Case Study | 522 |
| Vicol Bogdan, Gavrilaş Mihai, Ivanov Ovidiu, Kriukov Alexandru On-Line Transmission Line Parameters Identification Using Synchrophasor Measurements | 526 |
| Zaharescu Valentin, Miron Lucian, Romanescu Andrei Transformers Monitoring System Implemented in Substation Sibiu South | 530 |
| Toader Dumitru, Blaj Constantin, Ruset Petru Considerations Concerning Adjustments of Petersen Coil in the Medium Voltage Network | a-1 |
| Buda Constantin, Muresan Marius, Tămaș Adrian Calculations of Power Loses, Voltage Drops and Short Circuit Currents Due to Green Energy Generation | a-7 |
| Kasaš-Lažetić Karolina, Prša Miroslav, Đurić Nikola, Stojadinović Miodrag Determination and Graphical Presentation of Inhomogeneous Conductor's Resistance Coefficient | a-20 |
| Mučalica Nikola, Prša Miroslav, Kasaš-Lažetić Karolina, Bajović Vera, Dejana Herceg Impact of HV overhead power system on buried conductive pipes | a-24 |
| Marcu Roxana, Diaconu Ciprian, Florea Marian, Bărbulescu Christiana Equipment Ageing Conditions for Electric Power Equipment in Electricity Transmission Grid – Challenges, Solutions, Case Studies | a-28 |
| Andrușcă Mihai, Adam Maricel, Pantelimon Razvan, Baraboi Adrian, Pancu Cătălin LabVIEW Software Application for Monitoring and Diagnosis of Circuit Breakers | a-34 |
| Răzvan Florin Pantelimon, Maricel Adam, Mihai Andrușcă, Cătălin Pancu Comparative Study of Maximum Power Point Tracking Algorithms used in Solar Battery Charge Controllers- | a-40 |

Ladislau Reider, Ordean Adela, Cioroslan Maria, Guja Simona

Considerații privind condițiile tehnice de racordare la RED a centralelor electrice din resurse regenerabile

a-44

Adrem Invest

Overhead power line Automation. A SMART GRID Concept

a-54