

2019 IEEE PES Innovative Smart Grid Technologies Europe (ISGT-Europe 2019)

**Bucharest, Romania
29 September – 2 October 2019**

Pages 1-756



**IEEE Catalog Number: CFP19SGT-POD
ISBN: 978-1-5386-8219-7**

**Copyright © 2019 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: 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 Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP19SGT-POD
ISBN (Print-On-Demand):	978-1-5386-8219-7
ISBN (Online):	978-1-5386-8218-0

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

AN IMPROVED GRID IMPEDANCE ESTIMATION TECHNIQUE UNDER UNBALANCED VOLTAGE CONDITIONS	1
<i>Nabil Mohammed ; Mihai Ciobotaru ; Graham Town</i>	
OPTIMAL ENGAGEMENT AND OPERATION OF A GRID-CONNECTED PV/BATTERY SYSTEM	6
<i>Arnold N'Goran ; Bruno Daugrois ; Marc Lotteau ; Sophie Demassey</i>	
BENCHMARKING REGRESSION METHODS FOR FUNCTION APPROXIMATION IN REINFORCEMENT LEARNING: HEAT PUMP CONTROL	11
<i>Brida V. Mbuwir ; Fred Spiessens ; Geert Deconinck</i>	
IDENTIFYING CRITICAL LOAD LOCATIONS FOR POWER SYSTEM VOLTAGE, ANGULAR AND FREQUENCY STABILITY	16
<i>Yue Zhu ; Jovica V. Milanovic</i>	
A GUIDE TO SOLAR POWER FORECASTING USING ARMA MODELS	21
<i>Bismark Singh ; David Pozo</i>	
PREDICTING THE VOLTAGE DISTRIBUTION FOR LOW VOLTAGE NETWORKS USING DEEP LEARNING	25
<i>Maizura Mokhtar ; Valentin Robu ; David Flynn ; Ciaran Higgins ; Jim Whyte ; Caroline Loughran ; Fiona Fulton</i>	
FAIRNESS IN SMART GRID CONGESTION MANAGEMENT	30
<i>Brinn Hekkelman ; Han La Poutré</i>	
WIDE AREA MONITORING PROTECTION AND CONTROL SYSTEMS: THE ENABLERS FOR ENHANCING RENEWABLE ENERGY HOSTING CAPACITY	35
<i>Antonio Pepicciello ; Domenico Villacci ; Alfredo Vaccaro</i>	
ONLINE IDENTIFICATION OF POWER SYSTEM NETWORK BRANCH EVENTS	41
<i>Dulip Madurasinghe ; Paranietharan Arunagirinathan ; Ganesh K. Venayagamoorthy</i>	
A NEW TRANSFORMERLESS CONFIGURATION FOR GRID-CONNECTED PHOTOVOLTAIC INVERTERS	46
<i>Babak Rooholahi ; Esmaeil Zangeneh Bighash</i>	
WIRELESS POWER TRANSFER SYSTEM DESIGN FOR E-BIKES APPLICATION	51
<i>Federico Genco ; Michela Longo ; Dario Zaminelli ; Patrizia Livrieri ; Alicia Trivino</i>	
INTEGRATING HYBRID OFF-GRID SYSTEMS WITH BATTERY STORAGE: KEY PERFORMANCE INDICATORS	56
<i>Luís Costa ; Marta Ribeiro ; Ismael Miranda ; Helder Leite</i>	
DEMAND RESPONSE BASED ON UTILITY FUNCTION MAXIMIZATION CONSIDERING TIME-OF-USE PRICE	61
<i>T Vidyamani ; K. Shanti Swarup</i>	
OPTIMAL CONFIGURATION OF DC-DC CONVERTERS IN DC DISTRIBUTION NETWORK	66
<i>Hongkun Chen ; Fangzhou Xia ; Lei Chen ; Xinyu Qin ; Guocheng Li ; Kai Che ; Yang Liu</i>	
TWO-STEP LP APPROACH FOR OPTIMAL PLACEMENT AND OPERATION OF EV CHARGING STATIONS	71
<i>Behdad Faridpak ; Hamed Farhadi Gharibeh ; Meisam Farrokhifar ; David Pozo</i>	
DECARBONIZATION OF LOW POWER APPLICATIONS THROUGH METHANATION FACILITIES INTEGRATION	76
<i>Ionel Balcu ; Ionel Ciucanu ; Corina Macarie ; Bogdan Taranu ; Dana-Alexandra Ciupageanu ; Gheorghe Lazaroiu ; Virgil Dumbrava</i>	
INCORPORATING ANCILLARY SERVICE COSTS IN DISTRIBUTED ENERGY RESOURCES MANAGEMENT SYSTEMS	81
<i>Thiago Mendonca ; Nathaniel Bottrell ; Tim Green</i>	
A DYNAMICAL MULTI-INPUT/MULTI-OUTPUT NETWORK FORMULATION FOR STABILITY ANALYSIS IN AC MICROGRIDS	86
<i>Chrysovalantis Spanias ; Petros Aristidou ; Michalis Michaelides</i>	
INTEGRATION OF OFFSHORE WIND WITH O&G PLATFORMS WITH AN ENERGY STORAGE SYSTEM	91
<i>Jing Zhong Tee ; Kian Hou Tan ; Idris Li Hong Lim ; Keliang Zhou ; Olimpo Anaya-Lara</i>	
DYNAMIC MODELING OF ENERGY CONSUMPTION PATTERN OF A TYPICAL NIGERIAN AVERAGE URBAN AND RURAL HOUSEHOLD FOR MICROGRID PV DESIGN	96
<i>Ye-Obong Udoakah ; Emmanuel Mudaheranwa ; Liana Cipcigan</i>	

OPTIMAL PLANNING OF CHARGING PILES CONSIDERING TEMPORAL-SPATIAL CHARACTERISTICS OF CHARGING LOAD	101
<i>Baorong Zhou ; Wenmeng Zhao ; Qianyi Liang ; Lingxue Lin ; Lin Guan</i>	
THE OPPORTUNITIES FOR EFFICIENCY INCREASE OF PHASE-SHIFTING TRANSFORMERS IN POWER TRANSMISSION OPERATIONAL MODES	106
<i>L. P. Kalinin ; D. A. Zaitsev ; M. S. Tirsu ; I. V. Golub</i>	
MODELING OF IEC 61850 GOOSE SUBSTATION COMMUNICATION TRAFFIC USING ARMA MODEL.....	111
<i>Ronak Feizimirkhani ; Antoneta Iuliana Bratcu ; Yvon Bésanger ; Antoine Labonne ; Thierry Braconnier</i>	
USE OF PREDICTION BASED METER REPUTATION FACTORS IN POWER SYSTEMS.....	116
<i>Lee J. Thomas ; Alexandre Canet ; Sathsara Abeyasinghe</i>	
A COMPUTATIONALLY EFFICIENT SOLUTION ALGORITHM FOR LEAST ABSOLUTE VALUE STATE ESTIMATION PROBLEM.....	121
<i>Ashwin Venkatraman ; Dmitry Shchetinin ; Gabriela Hug</i>	
PROBABILISTIC ASSESSMENT OF PHOTOVOLTAIC HOSTING CAPACITY IN FINNISH LV NETWORKS.....	126
<i>Ammar Arshad ; Matti Lehtonen</i>	
A STUDY ON COST-EFFECTIVENESS OF ENERGY SUPPLY BASED ON THE ENERGY HUB CONCEPT.....	131
<i>Nikolai Voropai ; Ekaterina Ukolova ; Dmitry Gerasimov ; Konstantin Suslov ; Pio Lombardi ; Przemyslaw Komarnicki</i>	
PLANNING OF OLTC TRANSFORMERS IN LV SYSTEMS UNDER CONSERVATION VOLTAGE REDUCTION STRATEGY	135
<i>Alireza Nouri ; Andrew Keane</i>	
DIGITAL AUDIO BROADCASTING (DAB) GRID AGENTS FOR ANCILLARY SERVICES OF THE SMART GRID.....	140
<i>D. Tsiamitros ; D. Stimoniaris ; C. Orth ; F. Soares ; V. Zacharaki ; C. Spaggakas ; K. Gavros</i>	
OPTIMAL CONTROL OF ENERGY STORAGE DEVICES BASED ON PONTRYAGIN'S MINIMUM PRINCIPLE AND THE SHORTEST PATH METHOD	144
<i>Noa Zargari ; Yoash Levron ; Juri Belikov</i>	
A NONLINEAR OPTIMAL CONTROL METHOD FOR SYNCHRONIZATION OF DISTRIBUTED HYDROPOWER UNITS.....	149
<i>Gerasimos Rigatos ; Pierluigi Siano ; Masoud Abbaszadeh</i>	
LYAPUNOV EXPONENT FOR EVALUATION AND RANKING OF THE SEVERITY OF GRID EVENTS ON EXTRA-LARGE POWER SYSTEMS.....	154
<i>Christoph Rüeger ; Jean Dobrowolski ; Petr Korba ; Felix Rafael Segundo Sevilla</i>	
NONLINEAR CONSENSUS FOR IMPROVED RESILIENCE OF DISTRIBUTED SECONDARY FREQUENCY CONTROL.....	159
<i>Johannes Börner ; Simon Scheurich ; Florian Steinke</i>	
A HYBRID SYSTEM CONSISTING OF SYNCHRONOUS CONDENSER AND BATTERY - ENHANCED SERVICES FOR WEAK SYSTEMS	164
<i>Mirza Nuhic ; Guangya Yang</i>	
TOWARDS PROSUMER FLEXIBILITY MARKETS: A PHOTOVOLTAIC AND BATTERY STORAGE MODEL.....	169
<i>Babu Kumaran Nalini ; Mohamed Eldakadosi ; Zhengjie You ; Michel Zade ; Peter Tzscheutschler ; Ulrich Wagner</i>	
CHALLENGES FOR THE DESIGN OF A VEHICLE-TO-GRID LIVING LAB.....	174
<i>Rishabh Ghotge ; Ad Van Wijk ; Zofia Lukszo</i>	
NETZKAPA: SIMULATION TOOL FOR ASSESSING THE INTEGRATION OF ELECTRICAL VEHICLES IN DISTRIBUTION GRIDS	179
<i>Cristian Monsalve ; Stephan Ruhe ; Samir Khabourtli ; Steffen Nicolai</i>	
ANALYSIS OF DEMAND RESPONSE FOR DATACENTER ENERGY MANAGEMENT USING GA AND TIME-OF-USE PRICES.....	184
<i>Berk Celik ; Gustavo Rostirolla ; Stephane Caux ; Paul Renaud-Goud ; Patricia Stolf</i>	
A NEW CONTROL STRATEGY FOR HARMONIC MITIGATION USING OPEN UPQC IN MODERN LV NETWORKS	189
<i>R. Faranda ; E. Kazemi-Robati ; M. S. Sepasian ; K. Akkala ; H. Hafezi</i>	
COMPARISON OF TWO DAY-AHEAD OFFERING STRATEGIES FOR A FLEXIBLE CHP PLANT IN GERMANY	194
<i>Simon Ackermann ; Andrei Szabo ; Simon Paulus ; Florian Steinke</i>	

PREEMPTIVE VS. NON-PREEMPTIVE CHARGING SCHEDULE FOR LARGE-SCALE ELECTRIC BUS DEPOTS	199
<i>Amra Jahic ; Mina Eskander ; Detlef Schulz</i>	
ELECTRIC LOAD PROFILE NON-INTRUSIVE ANALYSIS TO GUIDE ENERGY EFFICIENT BEHAVIOR FOR RESIDENTIAL CLIENTS	204
<i>Etta Grover-Silva ; Elena Magliaro ; Johanna Le Conte</i>	
SECURITY AND PRIVACY FOR SMART METERS: A DATA-DRIVEN MAPPING STUDY	209
<i>Ioannis I. Antoniadis ; Kyriakos C. Chatzidimitriou ; Andreas L. Symeonidis</i>	
EVENT-TRIGGERED OUTPUT FEEDBACK LOAD FREQUENCY CONTROL FOR MULTI-AREA POWER SYSTEMS	214
<i>Wenjie Liu ; Zaiyue Yang ; Yunhe Hou</i>	
A COMPARATIVE ANALYSIS OF REAL TIME AND TIME OF USE PRICING SCHEMES IN DEMAND SIDE MANAGEMENT CONSIDERING DISTRIBUTED ENERGY RESOURCES	219
<i>Mrityunjay Kumar Mishra ; S. K Parida</i>	
LOW COMPUTATIONAL COST METHOD TO CALCULATE THE HOSTING CAPACITY IN RADIAL LOW VOLTAGE NETWORKS	224
<i>Juan Morales-Conde ; Sebastián Martín ; Juan Pérez-Ruiz</i>	
MULTI-LAYER REACTIVE POWER CONTROL OF SOLAR PHOTOVOLTAIC SYSTEMS IN MV DISTRIBUTION NETWORK	229
<i>Hieu Xuan Nguyen ; Takao Tsuji</i>	
FEATURE ENGINEERING FOR SHORT-TERM FORECAST OF ENERGY CONSUMPTION	234
<i>Margarita Spichakova ; Juri Belikov ; Kalvi Nõu ; Eduard Petlenkov</i>	
CONGESTION MANAGEMENT USING LOCAL FLEXIBILITY MARKETS: RECENT DEVELOPMENT AND CHALLENGES	239
<i>Ioannis Bouloumpasis ; David Steen ; Le Anh Tuan</i>	
A NOVEL TEMPORAL FEATURE SELECTION FOR TIME-ADAPTIVE TRANSIENT STABILITY ASSESSMENT	244
<i>Bendong Tan ; Jun Yang ; Ting Zhou ; Yi Xiao ; Qiangming Zhou</i>	
ASSESSING THE APPLICABILITY OF COMPLEX NETWORK THEORY MODELS AND IMPORTANCE MEASURES TO VULNERABILITY STUDIES OF CYBER-PHYSICAL SYSTEMS	249
<i>Wentao Zhu ; Jovica V. Milanovic ; Bojana Mihic</i>	
ANALYSIS OF PV SYSTEMS AND CHARGING STATIONS INTEGRATION INTO THE PUBLIC LIGHTING INFRASTRUCTURE	255
<i>Danijel Topic ; Harold R. Chamorro ; Goran Knezevic ; Rebecca Rye ; Francisco Gonzalez-Longatt ; Vijay K. Sood ; Jurica Perko</i>	
BRIDGING THE ATTITUDE-BEHAVIOUR GAP IN HOUSEHOLD ENERGY CONSUMPTION	260
<i>Yilin Huang ; Martijn Warnier</i>	
EFFICIENT FEATURE SELECTION STRATEGY FOR ACCURATE ELECTRICITY DEMAND FORECASTING	265
<i>Abinet Tesfaye Eseye ; Matti Lehtonen ; Toni Tukia ; Semen Uimonen ; John Millar</i>	
BATTERY STORAGE STORAGE SYSTEM FOR FREQUENCY CONTROL AND FAST PEAK SHAVING - CASE HELSINKI	270
<i>Pirjo Heine ; Atte Pihkala ; Hannu-Pekka Hellman ; Kristiina Siilin ; Suvi Takala ; Pia Ruokolainen ; Minna Laasonen</i>	
TIME SERIES ANALYSIS OF PREVENTIVE ISLANDING AS A MEASURE TO BOOST POWER GRID RESILIENCE	275
<i>Matthias Noebels ; Mathaios Panteli</i>	
PREDICTING GLOBAL TREND OF CYBERSECURITY ON CONTINENTAL HONEYNETS USING VECTOR AUTOREGRESSION	280
<i>Xing Ling ; Yeonwoo Rho ; Chee-Wooi Ten</i>	
ASSESSING THE INFLUENCE OF THE AGGREGATION LEVEL OF RESIDENTIAL CONSUMERS THROUGH LOAD DURATION CURVES	285
<i>Robbert Claeys ; Thijs Delerue ; Jan Desmet</i>	
PARAMETER ESTIMATION OF A SYNCHRONOUS GENERATOR AT MODERATE MEASUREMENT SAMPLING RATE	290
<i>Arindam Mitra ; Abhejeet Mohapatra ; Saikat Chakrabarti</i>	
DEMAND-SIDE VOLT/VAR/WATT REGULATION FOR EFFECTIVE VOLTAGE CONTROL IN DISTRIBUTION GRIDS	295
<i>Chrysovalantis Spanias ; Petros Aristidou ; Michalis Michaelides</i>	
RESEARCH ON WIND FARMS AGGREGATION METHOD FOR ELECTROMAGNETIC SIMULATION BASED ON FDNE	300
<i>Wei Li ; Aniruddha M. Gole ; Mukesh Kumar Das ; Iman Kaffashan</i>	

CHALLENGES IN PROTECTION OF CONVERTER DOMINATED MEDIUM-VOLTAGE MICROGRIDS	305
<i>Rabindra Mohanty ; Peiyuan Chen ; Le Anh Tuan ; Anant Narula</i>	
OPTIMAL ENERGY MANAGEMENT FOR OFF-GRID HYBRID SYSTEM USING HYBRID OPTIMIZATION TECHNIQUE	310
<i>Sajjad Asefi ; Mazhar Ali ; Elena Gryazina</i>	
CONTROLLER DEVELOPMENT FOR REACTIVE POWER FLOW MANAGEMENT BETWEEN DSO AND TSO NETWORKS	315
<i>Katja Sirviö ; Mike Mekkanen ; Kimmo Kauhaniemi ; Hannu Laaksonen ; Ari Salo ; Felipe Castro ; Shoaib Ansari ; Davood Babazadeh</i>	
COORDINATED PROSUMER TRANSACTION BASED ON LOAD SHIFTING AND OPTIMIZATION	320
<i>M. A. Albachrony ; D. L. Ha ; Q. T Tran ; A. Brun ; M. Petit</i>	
APPLICATION OF OPPORTUNISTIC INFORMATION-GAP DECISION THEORY ON DEMAND RESPONSE AGGREGATOR IN THE DAY-AHEAD ELECTRICITY MARKET	325
<i>Morteza Vahid-Ghavidel ; João P. S. Catalão ; Miadreza Shafie-Khah ; Behnam Mohammadi-Ivatloo ; Nadali Mahmoudi</i>	
AC TRANSMISSION EXPANSION PLANNING CONSIDERING UNCERTAINTY	330
<i>Richard M. Sanchez ; Luis R. Villacres ; Santiago P. Torres ; Carlos A. Castro</i>	
POWER QUALITY PREDICTION BY WAY OF PARALLEL COMPUTING - A NEW APPROACH BASED ON A LONG SHORT-TERM MEMORY NETWORK	335
<i>Adrian Eisenmann ; Tim Streubel ; Krzysztof Rudion</i>	
DISTRIBUTED MODEL PREDICTIVE CONTROL FOR DEMAND RESPONSE ON THERMAL DEVICES IN BUILDING BLOCKS	340
<i>Ramanunni Parakkal Menon ; Frederic Amblard ; Jessen Page</i>	
IDENTIFICATION OF SUITABLE LOCATIONS FOR HVDC LINKS WITHIN MESHED AC NETWORKS	345
<i>Marco Franken ; Hans Barrios ; Alexander B. Schrief ; Ralf Puffer</i>	
RESIDENTIAL-SCALE DEMONSTRATOR FOR SEASONAL LATENT THERMAL ENERGY STORAGE FOR HEATING AND COOLING APPLICATION WITH OPTIMIZED PV SELF-CONSUMPTION	350
<i>Remo Waser ; Matthias Berger ; Simon Maranda ; Jörg Worlitschek</i>	
DEMKIT: A DECENTRALIZED ENERGY MANAGEMENT SIMULATION AND DEMONSTRATION TOOLKIT	355
<i>Gerwin Hoogsteen ; Johann L. Hurink ; Gerard J. M. Smit</i>	
MODEL PREDICTIVE CONTROL ON BACK-TO-BACK PARALLEL-SERIES CASCADED H-BRIDGE CONVERTERS	360
<i>Felipe Silva Oliveira ; Lucas Frizera Encarnação ; Renner Sartório Camargo ; Emilio José Bueno Peña</i>	
AN ANALYSIS ON PV FORECAST ALLOCATION FOR DISTRIBUTION SYSTEM PLANNING	365
<i>Valentin Rigoni ; Alexander C. Melhorn ; Andrew Keane ; Jason Taylor</i>	
SIMULTANEOUS ONLINE IDENTIFICATION AND LOCALIZATION OF DISTURBANCES IN POWER TRANSMISSION SYSTEMS	370
<i>André Kummerow ; Cristian Monsalve ; Steffen Nicolai ; Peter Bretschneider</i>	
MODELING AND TRANSIENT SIMULATION OF SWITCHING CONVERTERS-BASED POWER SYSTEMS: BOOST CONVERTER	375
<i>Uriel Vargas ; Abner Ramirez ; George Cristian Lazaroiu</i>	
CENTRALIZED OPTIMAL MANAGEMENT OF DISTRIBUTION RESOURCES CONSIDERING THE EFFECTS OF LOCAL CONTROLLERS OF GENERATORS	380
<i>Maria Teresa Vespucci ; Paolo Piscicella ; Giacomo Viganò ; Diana Moneta ; Marco Rossi ; Daniele Stein ; Lilia Consiglio</i>	
INTEGRATION OF THE EV CHARGING STATIONS INTO THE PUBLIC LIGHTING INFRASTRUCTURE	385
<i>Danijel Topic ; Goran Knežević ; Damir Šljivac ; Matej Žnidarec ; Jurica Perko</i>	
A COMPARATIVE ANALYSIS OF TRANSMISSION SYSTEM PLANNING FOR OVERHEAD AND UNDERGROUND POWER SYSTEMS USING AC AND DC POWER FLOW	390
<i>Andrej Trpovski ; Thomas Hamacher</i>	
ASSESSMENT OF THE VALUE OF FREQUENCY RESPONSE TIMES IN POWER SYSTEMS	395
<i>Yifu Ding ; Roberto Moreira ; Dagoberto Cedillos</i>	
INVESTIGATION OF INVENTIVE TUNING ALGORITHM FOR THE REALIZATION OF DIGITAL TWINS OF INVERTER MODEL IN INVERTER-DOMINATED POWER DISTRIBUTION GRID	400
<i>X. Song ; T. Jiang ; S. Schlegel ; D. Westermann</i>	

ANALYSIS AND CONTROL OF NON-MINIMUM PHASE BEHAVIOR IN NONLINEAR AC GRIDS EQUIPPED WITH HVDC LINKS	406
<i>Yankai Xing ; Mohammad Pourmahmood Aghababa ; Bogdan Marinescu ; Florent Xavier</i>	
A NEW APPROACH TO OPTIMAL PLACEMENT OF POWER QUALITY MONITORS FOR VOLTAGE SAG DETECTION	411
<i>Raif Alicic ; Senad Smaka</i>	
A PROPOSAL FOR OPEN-SOURCE HVDC CONTROL	416
<i>Ilka Jahn ; Luca Bessegato ; Joakim Björk ; Fabian Hohn ; Staffan Norrga ; Niklas Svensson ; Kamran Sharifabadi ; Olivier Despouys</i>	
MULTI-OBJECTIVE MODEL FOR ALLOCATION OF GAS TURBINES WITH THE AIM OF BLACK-START CAPABILITY ENHANCEMENT IN SMART GRIDS	421
<i>M. R. Esmaili ; A. Khodabakhshian ; E. Heydarian-Forushani ; M. Shafie-Khah ; H. Hafezi ; R. Faranda ; J. P. S. Catalao</i>	
COMPARISON OF THREE METHODS FOR A WEATHER BASED DAY-AHEAD LOAD FORECASTING	426
<i>Mingzhe Zou ; Jiachen Gu ; Duo Fang ; Gareth Harrison ; Sasa Djokic ; Xinying Wang ; Chen Zhang</i>	
OPTIMIZING THE OPERATION OF A TRIGENERATION SYSTEM DESIGNED TO MEET ENERGY REQUIREMENTS FOR A CONSUMER	431
<i>Eugen Hopulele ; Radu-Dumitru Pentiu ; Mihai Gavrilas ; Bogdan Constantin Neagu</i>	
DEVELOPMENT OF REAL TIME SIMULATION MODEL FOR RESISTIVE TYPE FAULT CURRENT LIMITER	436
<i>Muhammad Abubakar ; Muhammad Sarwar ; Shoaib Mehboob ; Babar Hussain</i>	
PMU SUPERVISED SECURE BACKUP PROTECTION OF DISTANCE RELAYS	441
<i>Minal Chougule ; Gopal Gajjar ; S A Soman</i>	
SYNERGISM OF DEEP NEURAL NETWORK AND ELM FOR SMART VERY-SHORT-TERM LOAD FORECASTING	446
<i>Miltiadis Alamaniotis</i>	
EVALUATION OF THE SYSTEM-AGGREGATED POTENTIALS OF INERTIAL SUPPORT CAPABILITIES FROM WIND TURBINES	451
<i>Paul Imgart ; Peiyuan Chen</i>	
POWER QUALITY KNOWLEDGE APPLICATION FOR LOW VOLTAGE RIDE THROUGH STUDIES OF WIND TURBINE GENERATOR	456
<i>Cheng Chen ; Roger Alves De Oliveira ; Math H. J. Bollen ; Azam Bagheri</i>	
ENHANCING PV HOSTING CAPACITY OF A QATAR REMOTE FARM NETWORK USING INVERTERS ABILITY TO REGULATE REACTIVE POWER-A CASE STUDY	461
<i>Nand K. Singh ; M. Z. C. Wanik ; Abdullah A. Jabbar ; Antonio Sanfilippo</i>	
IMPACT OF NON-SYSTEMATIC ELECTRIC VEHICLE CHARGING BEHAVIOUR ON A DISTRIBUTION SUBSTATION	466
<i>Felipe Gonzalez Venegas ; Marc Petit ; Yannick Perez</i>	
A FRAMEWORK FOR INTEGRATING INTELLIGENT MOBILE ENERGY STORAGE INTO ENERGY DISTRIBUTION SYSTEMS	471
<i>Lara-Sophie Christmann ; Claudia Offel ; Luisa Rahn ; Nikhil Singh ; Lucie Géhin ; Gai Hang ; Asma Safaya ; Mahmoud Draz ; Sahin Albayrak</i>	
STOCHASTIC ESTIMATION OF PQ POWERS AT THE INTERFACE BETWEEN DISTRIBUTION AND TRANSPORT GRIDS	476
<i>Jérôme Buire ; Frédéric Colas ; Jean-Yves Dieulot ; Leticia De Alvaro ; Xavier Guillaud</i>	
ON THE OPTIMIZATION OF DAMPING ENHANCEMENT IN A POWER SYSTEM WITH A HYBRID HVDC LINK	481
<i>Harold R. Chamorro ; Roozbeh Torkzadeh ; Omar Kotb ; Kumars Rouzbehi ; Juan Manuel Escaño ; Francisco Gonzalez-Longatt ; Oriol Gomis Bellmunt ; Lucian Toma ; Vijay K. Sood</i>	
IDENTIFICATION AND ANALYSIS OF CASCADING FAILURES IN POWER GRIDS WITH PROTECTIVE ACTIONS	486
<i>Chao Zhai ; Gaoxi Xiao ; Hehong Zhang</i>	
THE DEPLOYMENT OF LOW CARBON TECHNOLOGIES IN MODERN DISTRIBUTION NETWORKS	491
<i>Ahmed A. Raouf Mohamed ; D. John Morrow ; Robert Best</i>	
MVDC APPLICATION: SWITCHING PROCESSES AC-TO-DC, DC -TO- AC AND IMBALANCE MITIGATION THROUGH DC MODE	496
<i>T. E. Castelo De Oliveira ; F. Van Overbeeke ; V. Cuk ; E. C. W De Jong</i>	
SHARING OF ENERGY AMONG COOPERATIVE HOUSEHOLDS USING DISTRIBUTED MULTI-AGENT REINFORCEMENT LEARNING	501
<i>Niklas Ebell ; Moritz Gütlein ; Marco Pruckner</i>	

A PRACTICAL PROPOSAL FOR STATE ESTIMATION AT BALANCED, RADIAL DISTRIBUTION SYSTEMS	506
<i>Panayiotis Panos Moutis ; Omid Alizadeh-Mousavi</i>	
MULTI-AGENT SYSTEM FOR SMART-GRID CONTROL WITH COMMITMENT MISMATCH AND CONGESTION.....	511
<i>J-B. Blanc-Rouchossé ; A. Blavette ; H. Ben Ahmed ; G. Camilleri ; M-P. Gleizes</i>	
EVALUATION AND COMPARISON OF BATTERY CELL BALANCING METHODS.....	516
<i>Bortecene Yildirim ; Mohammed Elgendy ; Andrew Smith ; Volker Pickert</i>	
TOWARDS SCALABLE FMI-BASED CO-SIMULATION OF WIND ENERGY SYSTEMS USING POWERFACTORY	521
<i>Arjen A. Van Der Meer ; Rishabh Bhandia ; Edmund Widl ; Kai Heussen ; Cornelius Steinbrink ; Przemyslaw Chodura ; Thomas I. Strasser ; Peter Palensky</i>	
LOSS PERFORMANCE EVALUATION OF FERRITE-CORED WIRELESS POWER SYSTEM WITH CONDUCTIVE AND MAGNETIC SHIELDS	526
<i>Babatunde Olukotun ; J. S. Partridge ; Richard W. G. Bucknall</i>	
ARTIFICIAL DYNAMIC THEORY BASED OPTIMAL POWER FLOW.....	531
<i>Anamika Tiwari ; Abheejeet Mohapatra ; Soumya Ranjan Sahoo</i>	
NOVEL FORMULATION OF PTDF AND LODF MATRICES FOR SECURITY CONSTRAINED OPTIMAL POWER FLOW FOR HYBRID AC AND DC GRIDS.....	536
<i>Marco Giuntoli ; Veronica Biagini ; Kevin Schönleber</i>	
GENERATION ADEQUACY IN THE NORDIC AND BALTIC AREA: THE POTENTIAL OF FLEXIBLE RESIDENTIAL ELECTRIC HEATING	541
<i>Alessandro Crosara ; Egill Tómasson ; Lennart Söder</i>	
A HYBRID APPROACH FOR MICROGRID PROTECTION SYSTEM BASED ON NEURAL NETWORK AND FUZZY LOGIC.....	546
<i>Matin Jamaliyan Daryani ; Alireza Esmaeili Karkevandi ; Omer Usta</i>	
IMPACT OF COIL TURNS ON LOSSES, OUTPUT POWER AND EFFICIENCY PERFORMANCE OF FLUX-PIPE RESONANT COILS	551
<i>Babatunde Olukotun ; J. S. Partridge ; Richard W. G. Bucknall</i>	
OPTIMAL SIZING AND LOCATION OF DISTRIBUTED GENERATION AND BATTERY ENERGY STORAGE SYSTEM	556
<i>Fernando García-Muñoz ; Francisco Díaz-Gonzalez ; Cristina Corchero ; Cristina Nuñez-De-Toro</i>	
STABILITY ANALYSIS OF VSC BACK-TO-BACK LINK TAKING INTO CONSIDERATION ADJACENT AC SYSTEMS OF ARBITRARY CONFIGURATION	561
<i>Igor Berkh ; Natalya Lozinova ; Olga Suslova ; Ruslan Ufa ; Mikhail Andreev ; Alexey Suvorov ; Nikolay Ruban</i>	
DEVELOPMENT OF CROSS-SECTORAL ACTIVE NETWORK MANAGEMENT SYSTEMS USING NEW ENGINEERING PARADIGMS	566
<i>Marcel Ludwig ; Jan Mehlich ; Schaugar Azad ; Markus Zdrallek ; Christian Thommessen ; Nicolas Witte ; Nils Loose ; Ralf Settertobulte ; Uwe Weber</i>	
ANALYZING THE EFFECT OF X/R RATIO ON DYNAMIC PERFORMANCE OF MICROGRIDS	571
<i>Moudud Ahmed ; Lasantha Meegahapola ; Arash Vahidnia ; Manoj Datta</i>	
CONVOLUTIONAL NEURAL NETWORK FOR SHORT-TERM WIND POWER FORECASTING	576
<i>Margarida Solas ; Nuno Cepeda ; Joaquim L. Viegas</i>	
ANALYSIS AND DETECTION OF CYBER ATTACK PROCESSES TARGETING SMART GRIDS.....	581
<i>D. Cerotti ; D. Codetta-Raiteri ; L. Egidi ; G. Franceschinis ; L. Portinale ; G. Dondossola ; R. Terruggia</i>	
DESIGN OF A FLEXIBLE AC/DC-LINK: AC VS DC ACTIVE POWER CAPACITY.....	586
<i>T. E. Castelo De Oliveira ; F. Van Overbeeke ; V. Cuk ; E. C. W De Jong</i>	
VIRTUAL SYNCHRONOUS GENERATOR WITH HARMONIC CURRENT FILTERING CAPABILITY BASED ON VOLTAGE DETECTION.....	591
<i>Thiago Silva Amorim ; Daniel Carletti ; Lucas Frizzera Encarnação</i>	
A LINEAR FORMULATION FOR POWER SYSTEM STATE ESTIMATION INCLUDING RTU AND PMU MEASUREMENTS.....	596
<i>Aleksandar Jovicic ; Marko Jereminov ; Larry Pileggi ; Gabriela Hug</i>	
ASSESSING ENERGY TRANSITION SCENARIOS FOR ISLANDS THROUGH NETWORK RELIABILITY AND POWER FLOW ANALYSIS	601
<i>Essam. K. Hussain ; Pr. Thies</i>	
ADAPTED NEWTON-RAPHSON POWER FLOW METHOD FOR A DC TRACTION NETWORK INCLUDING NON-RECEPTIVE POWER SOURCES AND PHOTOVOLTAIC SYSTEMS.....	606
<i>M. Salih ; M. Koch ; D. Baumeister ; M. Wazifehdust ; P. Steinbusch ; M. Zdrallek</i>	
ENERGY SCHEDULING STRATEGIES FOR GRID-CONNECTED MICROGRIDS: A CASE STUDY ON CHALMERS CAMPUS.....	611
<i>Kyriaki Antoniadou-Plytaria ; David Steen ; Le Anh Tuan ; Ola Carlson</i>	

OPTIMIZED SECTION-WISE RELAY COORDINATION BASED ON COORDINATION TIME INTERVAL USING STANDARD CURVES WITH CENTRALIZED SYSTEM	616
<i>V Vinod ; U Jayachandra Shenoy</i>	
FLEXIBILITY ASSESSMENT TOOL BY FAILURE-BASED UNCERTAINTY MANAGEMENT IN POWER SYSTEMS.....	621
<i>Gokturk Poyrazoglu ; Ugur Dolu</i>	
IMPACT OF GRID TOPOLOGY AND TAP POSITION CHANGES ON THE FLEXIBILITY PROVISION FROM DISTRIBUTION GRIDS.....	626
<i>Daniel A. Contreras ; Krzysztof Rudion</i>	
OPTIMAL OPERATION OF A RESIDENTIAL MICROGRID WITH DEMAND SIDE MANAGEMENT	631
<i>B. Lokeshgupta ; S. Sivasubramani</i>	
IMPROVING THE DEGREE OF AUTARKY OF A 16 HOUSE NEIGHBOURHOOD IN THE NETHERLANDS - A CASE STUDY	636
<i>Bart Homan ; Stefano Nebiolo ; Gerwin Hoogsteen ; Johann L. Hurink ; Gerard J. M. Smit</i>	
A NOVEL METHOD FOR ACCELERATING THE ANALYSIS OF NONLINEAR BEHAVIOUR OF POWER GRIDS USING NORMAL FORM TECHNIQUE	641
<i>Nnaemeka Sunday Ugwuanyi ; Xavier Kestelyn ; Olivier Thomas ; Bogdan Marinescu</i>	
IMPACTS OF A LOCAL ELECTRICITY MARKET OPERATED BY A LOCAL SYSTEM OPERATOR: MINIMIZE COSTS OR MAXIMIZE PROFITS?.....	646
<i>Agustin Sanchez De La Nieta ; Madeleine Gibescu</i>	
BLOCKCHAIN APPLICABILITY USING SMART POWER MANAGEMENT: SEALEDGRID ARCHITECTURE.....	651
<i>George Suciu ; Mari-Anais Sachian ; Marius Vochin ; Marius Dobrea ; Cristian Beceanu ; Raluca Iosu ; Ana Petrache</i>	
OPTIMAL PLACEMENT AND SETTINGS OF FACTS DEVICES FOR REACTIVE POWER COMPENSATION USING A FIREFLY ALGORITHM	656
<i>Ahmed El-Sherif ; Galal Elkobrosy ; Yasmine Abouelseoud ; Yahya Helmy</i>	
ECONOMICAL ANALYSIS OF DISTRIBUTED JOINT ENERGY AND RESERVE MARKETS	661
<i>Zhenwei Guo ; Qinmin Yang ; Shibo Chen ; Zaïyue Yang</i>	
ONLINE IMPEDANCE MEASUREMENT OF A MODULAR MULTILEVEL CONVERTER	666
<i>Matthias Quester ; Fisnik Loku ; Viswaja Yellisetti ; Ralf Puffer</i>	
AUTOMATED FAULT ANALYSIS AND DIAGNOSIS USING HIGH-FREQUENCY AND MAINTENANCE DATA FROM DISTRIBUTION NETWORKS	671
<i>Xu Jiang ; Bruce Stephen ; Stephen D. J. McArthur</i>	
GENERATOR CONTROLLER TUNING CONSIDERING STOCHASTIC LOAD VARIATION USING ANALYSIS OF VARIANCE AND RESPONSE SURFACE METHOD.....	676
<i>Frank A. Ibarra ; Daniel Turizo ; César Orozco-Henao ; Javier Guerrero</i>	
INTRUSION DETECTION IN SMART GRID USING BAGGING ENSEMBLE CLASSIFIERS.....	681
<i>Abdulhamit Subasi ; Saeed M. Qaisar ; Malak Al-Nory ; Khulood A. Rambo</i>	
WIDE-AREA MEASUREMENT BASED IDENTIFICATION OF FAULTY LINES CONSIDERING DATA UNAVAILABILITY FROM CRITICAL BUSES	686
<i>Shubham Anand ; S. K. Parida</i>	
PRICE ESTIMATION BY RANDOM WALK MEAN REVERSION IN DAY-AHEAD ELECTRICITY MARKET	691
<i>Gokturk Poyrazoglu</i>	
GREEDY ALGORITHM FOR GENERATOR START-UP SEQUENCE OPTIMIZATION IN POWER SYSTEM RESTORATION CONSIDERING TRANSMISSION PATH.....	696
<i>Jian Zhang ; Dong Wang ; Changqing Xu ; Changcheng Li ; Ning Zhang</i>	
AN OPC UA-BASED ENERGY MANAGEMENT PLATFORM FOR MULTI-ENERGY PROSUMERS IN DISTRICTS	701
<i>Denis Bytschkow ; Alexandre Capone ; Jan Mayer ; Michael Kramer ; Thomas Lickleder</i>	
ALGORITHM OF CURRENT PROTECTION BASED ON THREE INSTANTANEOUS-VALUE SAMPLES	706
<i>Nadezhda Buryanina ; Yuriy Korolyuk ; Maya Koryakina ; Elena Lesnykh ; Konstantin Suslov</i>	
TRANSMISSION EXPANSION PLANNING CONSIDERING THE IMPACT OF DISTRIBUTED GENERATION.....	711
<i>Nelson E. Matute ; Santiago P. Torres ; Carlos A. Castro</i>	
EVALUATION OF A THREE-PHASE DISTRIBUTION SYSTEM STATE ESTIMATION FOR OPERATIONAL USE IN A REAL MEDIUM VOLTAGE GRID	717
<i>Daniel Groß ; Heiner Früh ; Pascal Wiest ; Daniel Contreras ; Krzysztof Rudion ; Linda Rupp ; Christian Lakenbrink</i>	

CIMPYORM – A QUERYABLE PYTHON CIM-CACHE FOR SMART GRID APPLICATIONS	722
<i>Thomas Offergeld ; Markus Knittel ; Reinhold Bertram</i>	
CUSTOMER BASELINE LOAD ESTIMATION FOR INCENTIVE-BASED DEMAND RESPONSE USING LONG SHORT-TERM MEMORY RECURRENT NEURAL NETWORK	727
<i>James Oyedokun ; Shengrong Bu ; Zhu Han ; Xue Liu</i>	
FUZZY LOGIC CONTROLLED POWER SHARING AMONG ENERGY STORAGE DEVICES IN MULTIPLE STANDALONE DC MICROGRIDS	732
<i>Smita Sinha ; Dinesh Varma Tekumalla ; Prabodh Bajpai</i>	
OPTIMAL PROCUREMENT OF ANCILLARY SERVICES CONSIDERING BALANCE AND SYSTEM SECURITY CRITERIA	737
<i>Martin Strelec ; Pavel Hering ; Petr Janecek ; Daniel Georgiev ; Premysl Vorác</i>	
IMPACT OF ENVIRONMENTAL CONDITIONS ON THE VOLTAGE PROFILE OF LV NETWORKS	742
<i>Ferréol Binot ; Trung Dung Le ; Marc Petit</i>	
DOMESTIC APPLIANCES SCHEDULING USING BPSO AND IOT	747
<i>Nabeel Tawalbeh ; Hanan M. Abusamaha ; Ahmed Al-Salaymeh</i>	
ELECTRICAL ENERGY CONSUMPTION MODEL OF INTERNAL COMPONENTS IN DATA CENTERS	752
<i>Kazi Main Uddin Ahmed ; Jil Sutaria ; Math H. J. Bollen ; Sarah K. Rönnberg</i>	
AN FCL OPTIMAL CONFIGURATION METHOD FOR REDUCING THE RISK OF SUCCESSIVE COMMUTATION FAILURE IN MI-HVDC SYSTEMS	757
<i>Boda Li ; Shaowei Huang ; Kuan Zheng ; Shengya Qiao ; Heping Peng ; Lu Zhu</i>	
THE ROLE OF ALEATORY AND EPISTEMIC UNCERTAINTIES IN A STOCHASTIC HOSTING CAPACITY APPROACH FOR SOLAR PV	762
<i>Enock Mulenga ; Math H. J. Bollen ; Nicholas Etherden</i>	
USING IEC CIM STANDARDS AND SOA TECHNOLOGY FOR COORDINATED VOLTAGE CONTROL APPLICATION	767
<i>Shengye Lu ; Sami Repo ; Mikko Salmenperä ; Jari Seppälä ; Hannu Koivisto</i>	
OPTIMAL ENERGY SUPPLY SCHEDULING FOR A SINGLE HOUSEHOLD: INTEGRATING MACHINE LEARNING FOR POWER FORECASTING	772
<i>Thomas Buechler ; Fabian Pagel ; Thibault Petitjean ; Mahmoud Draz ; Sahin Albayrak</i>	
INCREASING DER HOSTING CAPACITY IN LV GRIDS IN THE CZECH REPUBLIC IN TERMS OF EUROPEAN PROJECT INTERFLEX	777
<i>Stanislav Hes ; Jan Kula ; Jan Svec</i>	
EXISTING APPROACHES TO WIDE-SCALE DSM DEPLOYMENT TO FACILITATE TRANSMISSION NETWORK FLEXIBILITY - RESULTS OF THE SURVEY IN SOUTH-EAST EUROPE	782
<i>Jelena Ponocko ; Jovica V. Milanovic ; Aleksandra Krkoleva Mateska ; Petar Krstevski ; Stefan Borozan</i>	
DETAILED AND AVERAGE BATTERY ENERGY STORAGE MODEL COMPARISON	787
<i>Fabian Calero ; Claudio A. Cañizares ; Kankar Bhattacharya</i>	
ENERGY MANAGEMENT METHODOLOGY FOR FUSION GRID	792
<i>Andrey Lana ; Iurii Demidov ; Antti Pinomaa ; Dick Carrillo ; Olli Pyrhönen</i>	
LINEARIZED ATTACK VECTOR FORMULATION AGAINST AC STATE ESTIMATOR	797
<i>Gaurav Khare ; Abheejeet Mohapatra ; S. N. Singh</i>	
PROPAGATION PHENOMENA OF CONDUCTED DISTURBANCES IN A CONVERTER POWERED THROUGH A LISN	802
<i>Anca-Alexandra Sapunaru ; Violeta-Maria Ionescu ; Mihai Octavian Popescu ; Claudia Laurenta Popescu</i>	
A NOVEL RESEARCH ALGORITHMS AND BUSINESS INTELLIGENCE TOOL FOR PROGRESSIVE UTILITY'S PORTFOLIO MANAGEMENT IN RETAIL ELECTRICITY MARKETS	807
<i>Prodromos Makris ; Dimitrios J. Vergados ; Ioannis Mamounakis ; Georgios Tsaousoglou ; Konstantinos Steriotis ; Nikolaos Efthymiopoulos ; Emmanouel Varvarigos</i>	
DISTRIBUTED MODEL PREDICTIVE CONTROL OF WIND FARMS FOR SHORT-TERM GRID SUPPORT	812
<i>Moritz Theißen ; Olaf Stursberg</i>	
COMBINED HEAT AND POWER MARKETS BY DOUBLE-SIDED AUCTION MECHANISMS	817
<i>Roland Saur ; Neil Yorke-Smith ; Han La Poutré</i>	
IMPACT OF MODES OF OPERATION OF SMART INVERTERS ON VOLT-VAR OPTIMIZATION	822
<i>Vineeth Vijayan ; Abheejeet Mohapatra ; S. N. Singh</i>	

OPTIMAL PLACEMENT OF ENERGY STORAGE SYSTEMS IN MICROGRIDS USING A PSO BASED APPROACH	827
<i>Bogdan Constantin Neagu ; Mihai Gavrilas ; Radu Dumitru Pentiuic ; Eugen Hopulele</i>	
HIGH IMPACT FALSE DATA INJECTION ATTACK AGAINST REAL-TIME PRICING IN SMART GRIDS	832
<i>Thusitha Dayaratne ; Carsten Rudolph ; Ariel Liebman ; Mahsa Salehi ; Shan He</i>	
A DIRECT PERTURBATION BASED SENSOR-FREE MPPT WITH DC BUS VOLTAGE CONTROL FOR A STANDALONE DC MICROGRID	837
<i>Manoranjan Satapathy ; Meher Preetam Korukonda ; Amir Hussain ; Laxmidhar Behera</i>	
VALUE OF V2G FREQUENCY REGULATION IN GREAT BRITAIN CONSIDERING REAL DRIVING DATA	842
<i>Andreas Thingvad ; Lisa Calearo ; Peter B. Andersen ; Mattia Marinelli ; Myriam Neaimeh ; Kenta Suzuki ; Kensuke Murai</i>	
A NOVEL PROCEDURE FOR THE OPTIMAL SCHEDULING OF OPERATING RESERVE BASED ON STOCHASTIC OPTIMIZATION	847
<i>Davide Poli ; Michela Monaco ; Marco Giuntoli ; Veronica Biagini</i>	
AUTOMATED APPLICATION ORIENTED TESTING USING REAL POWER NETWORK MODELS FOR COMBINED PROTECTION AND CONTROL SYSTEMS	852
<i>D. Hilbrich ; S. W. A. Shah ; C. Rehtanz</i>	
TECHNO-ECONOMIC STUDY OF HYDROGEN PRODUCTION USING PV, WIND POWER AND BATTERY STORAGE	857
<i>V. Papadopoulos ; J. Knockaert ; C. Develder ; J. Desmet</i>	
LIFE CYCLE COST ANALYSIS OF ELECTRIC VEHICLES BASED ON CRITICAL PRICE AND CRITICAL DISTANCE	862
<i>Hamed Farhadi Gharibeh ; Leyla Mokhtari Khiavi ; Meisam Farrokhifar ; David Pozo</i>	
INNOVATIVE POWER MANAGEMENT OF HYBRID ENERGY STORAGE SYSTEMS COUPLED TO RES PLANTS: THE SIMULTANEOUS PERTURBATION STOCHASTIC APPROXIMATION APPROACH	867
<i>Dana-Alexandra Ciupageanu ; Linda Barelli ; Andrea Ottaviano ; Dario Pelosi ; Gheorghe Lazaroiu</i>	
MULTI-OBJECTIVE OPTIMAL SCHEDULING OF ELECTRIC VEHICLE BATTERIES IN BATTERY SWAPPING STATION	872
<i>Gurappa Battapothula ; Chandrasekhar Yammani ; Sydulu Maheswarapu</i>	
INFLUENCE OF DIFFERENT FAULT RIDE-THROUGH STRATEGIES OF CONVERTER-INTERFACED DISTRIBUTED GENERATION ON SHORT-TERM VOLTAGE STABILITY	877
<i>Martin Coumont ; Florian Bennewitz ; Jutta Hanson</i>	
INNOVATIVE ADAPTIVE INTELLIGENT SCHEME FOR VOLTAGE-FREQUENCY CONTROL IN INVERTER-BASED MICROGRID	882
<i>Alireza Esmaeili Karkevandi ; Matin Jamaliyan Daryani ; Omer Usta</i>	
POWER FLOW COLOURING: A NOVEL POWER FLOW TRACING METHODOLOGY TAILORED FOR THE EUROPEAN ZONAL ELECTRICITY MARKET DESIGN	887
<i>Dusan Vlasisavljevic ; Iva Mihajlovic Vlasisavljevic ; Milan Vukasovic ; Zoran Vujasinovic</i>	
DIFFERENT RESPONSES OF LOAD MODELS WHEN FACING SHORT-CIRCUITS IN A DISTRIBUTION SYSTEM WITH INTERMITTENT DISTRIBUTED GENERATION	892
<i>André Luís Da Silva Pessoa ; Pedro Henrique Aquino Barra ; Mário Oleskovicz ; Fernando Ribeiro Arduini ; Paulo Estevão Teixeira Martins</i>	
DROOP BASED SECONDARY CONTROLLER FOR ISLANDED DC MICROGRID WITH LINE LOSS MINIMIZATION	897
<i>Rajneesh Kumar Yadav ; Souradip De ; Soumya Ranjan Sahoo ; Saikat Chakrabarti</i>	
EFFECTIVE INPUT DATASET IDENTIFICATION METHODOLOGY FOR ACCURATE PREDICTION OF LOCAL PV POWER PRODUCTION	902
<i>Abinet Tesfaye Eseye ; Matti Lehtonen ; Toni Tukia ; Semen Uimonen ; John Millar</i>	
ASSESSING ROBUSTNESS OF RISK-CONSTRAINED OPERATING STRATEGIES FOR POWER SYSTEMS WITH RENEWABLES BY CONTAMINATION-BASED TECHNIQUE	907
<i>Yujia Li ; Shuanglei Feng ; Yunhe Hou</i>	
A SIC MOSFET BASED HIGH VOLTAGE DC SMART HYBRID CONTACTOR DESIGN	912
<i>Dong Yanjun ; Ding Jingyi ; Zhang Xiaobin</i>	
ENERGY MANAGEMENT FOR MICROGRIDS: A REINFORCEMENT LEARNING APPROACH	917
<i>Tanguy Levent ; Philippe Preux ; Erwan Le Pennec ; Jordi Badosa ; Gonzague Henri ; Yvan Bonnassieux</i>	
A NOVEL MDP BASED DECISION SUPPORT FRAMEWORK TO RESTORE EARTHQUAKE DAMAGED DISTRIBUTION SYSTEMS	922
<i>Ebru Aydın Gol ; Burcu Güldür Erkal ; Murat Göl</i>	

ITERATIVE TIME-FREQUENCY HARMONIC ANALYSIS: PROBLEMS AND SOLUTIONS	927
<i>Thainan S. Theodoro ; M. T. Correia De Barros ; P. G. Barbosa ; A. M. Variz</i>	
COMPREHENSIVE EVALUATION OF ENERGY SYSTEM IN CHARACTERISTIC TOWNS BASED ON MATTER-ELEMENT EXTENSION MODEL	932
<i>Wei Huang ; Yang Zili</i>	
TRANSFORMER LOSS OF LIFE MITIGATION IN THE PRESENCE OF ENERGY STORAGE AND PV GENERATION	937
<i>Milad Soleimani ; Carolina M. Affonso ; Mladen Kezunovic</i>	
CORRELATING GRID-OPERATORS' PERFORMANCE WITH CASCADING FAILURES IN SMART-GRIDS	942
<i>Rezoan A. Shuvro ; Pankaz Das ; Joana M. Abreu ; Majeed M. Hayat</i>	
FREQUENCY AND VOLTAGE DATA PROCESSING BASED FEEDER PROTECTION IN MEDIUM VOLTAGE MICROGRID	947
<i>Adhishree Srivastava ; S. K. Parida</i>	
UNIVERSITIES' IMPLICIT DEMAND RESPONSE PARTICIPATION	952
<i>Zheng Ma ; Lewe Friedrichsen ; Mie Thomsen ; Bo Nørregaard Jørgensen</i>	
DISTRIBUTION GRID FLEXIBILITY-RAMP MINIMIZATION USING LOCAL RESOURCES	957
<i>Sajjad Fattaheian-Dehkordi ; Mehdi Tavakkoli ; Ali Abbaspour ; Mahmud Fotuhi-Firuzabad ; Matti Lehtonen</i>	
INCORPORATING CHARGER EFFICIENCY INTO ELECTRIC VEHICLE CHARGING OPTIMIZATION	962
<i>Constance Crozier ; Matthew Deakin ; Thomas Morstyn ; Malcolm McCulloch</i>	
IMPACT ANALYSIS OF ELECTRIC VEHICLE PRICE MECHANISM ON LOAD DEMAND RESPONSE OF DISTRIBUTION NETWORK	967
<i>Hui Ren ; Aiwei Zhang ; Hongshan Zhao ; Xihui Yan ; Jinling Lu ; Wei Li</i>	
POWER FLOW FOR A FOUR-WIRE RADIAL LOW VOLTAGE DISTRIBUTION GRID WITH A SINGLE POINT GROUNDED NEUTRAL	972
<i>Andreas Kotsionias ; Lenos Hadjidemetriou ; Elias Kyriakides</i>	
OPTIMAL SCHEDULING OF DYNAMIC ENERGY DEMAND IN SMART GRID USING TIME- SLOTING LINEAR PROGRAMMING	977
<i>Mohd Nazrin Mansor ; Wooi-Nee Tan ; Ming Tao Gan ; Sook Chin Yip ; Hwee Ling Wong</i>	
A NEW APPROACH FOR THE DISTRIBUTED DEPLOYMENT OF CENTRALIZED ALGORITHMS IN SMART GRIDS	982
<i>T. T. Q. Nguyen ; V. Debusschere ; Ch. Bobineau ; A. Labonne ; C. Boudinet ; Q. H. Giap ; N. Hadjsaid</i>	
A COMPARISON OF ECONOMIC MPC FORMULATIONS FOR THERMAL BUILDING CONTROL	987
<i>Philipp Zwickel ; Alexander Engelmann ; Lutz Gröll ; Veit Hagenmeyer ; Dominique Sauer ; Timm Faulwasser</i>	
A MACHINE LEARNING MODEL FOR LONG-TERM POWER GENERATION FORECASTING AT BIDDING ZONE LEVEL	992
<i>Michela Moschella ; Mauro Tucci ; Emanuele Crisostomi ; Alessandro Betti</i>	
A MULTI-AREA ASSISTED ROTATIONAL LOAD SHEDDING PLAN FOR MUTUAL SUPPORT OF POWER SYSTEMS UNDER ABNORMAL SITUATIONS	997
<i>Shaghayegh Zalzar ; Ettore Bompard ; Gianfranco Chicco ; Tao Huang ; Marta Poncela-Blanco ; Alessandro Zani ; Gianluca Fulli</i>	
HARMONICS CONTENT AND VOLTAGE SIGNAL BASED HYBRID BACKUP SCHEME FOR PROTECTION OF MICROGRID UNDER DIFFERENT CONTINGENCIES	1002
<i>Matin Jamaliyan Daryani ; Alireza Esmaeili Karkevandi ; Omer Usta</i>	
A NON-LINEAR LOAD SHARING METHOD BY HARMONICS SPECTRUM ALLOCATION TO THE INVERTERS	1007
<i>Mostafa Yazdi ; Farhad Yazdi</i>	
ANALYSIS OF SMART TECHNICAL MEASURES IMPACTS ON DER AND EV HOSTING CAPACITY INCREASE IN LV AND MV GRIDS IN THE CZECH REPUBLIC IN TERMS OF EUROPEAN PROJECT INTERFLEX	1012
<i>Stanislav Hes ; Jan Kula ; Jan Svec</i>	
EVALUATION OF MAXIMUM SOLAR PV PENETRATION: DETERMINISTIC APPROACH FOR OVER VOLTAGE CURTAILMENTS	1017
<i>D Chathurangi ; U Jayatunga ; S Perera ; A Agalgaonkar</i>	
AN ANALYTICAL APPROACH FOR PHASE BALANCING CONSIDERING CUSTOMER LOAD PROFILE	1022
<i>Priyanka Gangwar ; S. N. Singh ; S. Chakrabarti</i>	
ON THE DYNAMICS OF TRANSMISSION CAPACITY AND LOAD LOSS DURING CASCADING FAILURES IN POWER GRIDS	1027
<i>Rezoan A. Shuvro ; Pankaz Das ; Mahshid Rahnamay-Naeini ; Francesco Sorrentino ; Majeed M. Hayat</i>	

TOWARDS THE OPTIMAL USE OF AN EXISTING MRE ELECTRICAL NETWORK FROM AN ELECTROTHERMAL PERSPECTIVE.....	1032
<i>C.-H. Bonnard ; A. Blavette ; S. Bourguet ; F. Rongère ; T. Kovaltchouk ; T. Soulard</i>	
EVOLUTION OF DISTRIBUTION UNDERGROUND MONITORING	1037
<i>Francisc Zavoda ; George C. Fofeldea ; Ernie M. Rodriguez</i>	
ANALYSIS OF FAULT BLOCKING ABILITY OF A MMC IMPROVED DOUBLE HALF BRIDGE SUB-MODULE.....	1042
<i>Ming Meng ; Yahui Su ; Yang Luo</i>	
DESIGN AND IMPLEMENTATION OF SMART METERS WITH HYBRIDE COMMUNICATION SYSTEM ARCHITECTURE	1048
<i>Yusra Merve Mendi ; Hulya Akinc ; Ibrahim Basalan ; Deren Atli ; Yahya Civelek</i>	
A RELIABILITY ANALYSIS AND COMPARISON OF BATTERY ENERGY STORAGE SYSTEMS	1053
<i>Haiyang Liu ; Mathaios Panteli</i>	
UNCERTAINTY HANDLING CONTROL ALGORITHMS FOR DEMAND RESPONSE WITH MODULATING ELECTRIC HEATING DEVICES	1058
<i>Thomas Dengiz ; Patrick Jochem ; Wolf Fichtner</i>	
FREQUENCY CONTROL OF ELECTRICITY GRID INTEGRATED WITH VARIABLE GENERATION USING PUMPED STORAGE HYDRO POWER PLANT	1063
<i>Subin Netsawang ; Sarun Pansrisu ; Somboon Nuchprayoon</i>	
THE EFFECT OF THE UNCERTAINTY OF LOAD AND RENEWABLE GENERATION ON THE DYNAMIC VOLTAGE STABILITY MARGIN	1068
<i>Georgia Pierrou ; Xiaozhe Wang</i>	
OPTIMAL HOME ENERGY MANAGEMENT FOR ELECTRIC FLEXIBILITY PROVISION.....	1073
<i>Vahid Hosseimezhad ; Miadreza Shafie-Khah ; Pierluigi Siano ; João P. S. Catalão</i>	
DESIGN OF A FUZZY LOGIC CONTROLLER FOR A REMOTE POWER APPLICATION.....	1079
<i>Dana-Alexandra Ciupageanu ; Linda Barelli ; Gheorghe Lazaroiu</i>	
FAULT ANALYSIS IN A MICROGRID CONTEXT: DEMOCRAT PROJECT	1084
<i>Carlos Fernandes ; Ismael Miranda ; Helder Leite ; Eduardo Rodrigues</i>	
WIND TURBINE HEALTH ASSESSMENT FRAMEWORK BASED ON POWER ANALYSIS USING MACHINE LEARNING METHOD.....	1089
<i>Qiuyi Huang ; Yue Cui ; Lina Bertling Tjernberg ; Pramod Bangalore</i>	
REACTIVE POWER CONTROL OF GRID INTERACTIVE BATTERY ENERGY STORAGE SYSTEM FOR WADC.....	1094
<i>Roozbeh Torkzadeh ; Harold R. Chamorro ; Rebecca Rye ; Mojtaba Eliassi ; Lucian Toma ; Francisco Gonzalez-Longatt</i>	
TIME-INVARIANT STATE-SPACE MODEL OF AN AC CABLE BY DQ-REPRESENTATION OF FREQUENCY-DEPENDENT P-SECTIONS	1099
<i>Salvatore D'Arco ; Jon Are Suul ; Jef Beerten</i>	
UNBALANCED MODELLING OF STATCOM AND SVC IN HYBRID LOAD FLOW METHOD.....	1104
<i>Waleed Alabri ; Dilan Jayaweera</i>	
ON GRID MODELING FOR STABILITY ASSESSMENT OF DROOP VOLTAGE CONTROL.....	1109
<i>Friederike Thomas ; Sebastian Kraemer ; Jan Winkler ; Peter Schegner ; Klaus Röbenack</i>	
OPTIMAL POWER FLOW UNDER UNCERTAINTY: AN EXTENSIVE OUT-OF-SAMPLE ANALYSIS.....	1114
<i>Adriano Arrigo ; Christos Ordoudis ; Jalal Kazempour ; Zacharie De Grève ; Jean-François Toubeau ; François Vallée</i>	
MULTI-STAGE STOCHASTIC PLANNING OF WIND GENERATION CONSIDERING DECISION-DEPENDENT UNCERTAINTY IN WIND POWER CURVE.....	1119
<i>Wenqian Yin ; Yan Xue ; Shunbo Lei ; Yunhe Hou</i>	
CHANCE-CONSTRAINED ANCILLARY SERVICE SPECIFICATION FOR HETEROGENEOUS STORAGE DEVICES.....	1124
<i>Michael P. Evans ; David Angeli ; Goran Strbac ; Simon H. Tindemans</i>	
MAXIMIZING THE SELF-CONSUMPTION OF SOLAR-PV USING BATTERY ENERGY STORAGE SYSTEM IN SAMSO-MARINA	1129
<i>Ponnaganti Pavani ; Birgitte Bak-Jensen ; Jayakrishnan R Pillai</i>	
DAY-AHEAD PROBABILISTIC LOAD FORECASTING FOR INDIVIDUAL ELECTRICITY CONSUMPTION – ASSESSMENT OF POINT-AND INTERVAL-BASED METHODS	1134
<i>Kirstin Ganz ; Michael Hinterstocker ; Serafin Von Roon</i>	
AN INCENTIVE BASED DEMAND RESPONSE BY HVAC SYSTEMS IN RESIDENTIAL HOUSES.....	1139
<i>Mehdi Tavakkoli ; Sajjad Fattaheian-Dehkordi ; Mahdi Pourakbari-Kasmaei ; Matti Liski ; Matti Lehtonen</i>	

SIGNIFICANCE OF COGENERATION FOR GERMANY'S FUTURE ENERGY SUPPLY	1144
<i>Christian Thommessen ; Nicolas Witte ; Florian Nigbur ; Jürgen Roes ; Angelika Heinzl ; Othmar M. Verheyen</i>	
CONTRIBUTION OF ADVANCED DEMAND SIDE MANAGEMENT TO ANGULAR STABILITY OF INTERCONNECTED TRANSMISSION NETWORKS	1149
<i>Mengxuan Wang ; Jovica V. Milanovic</i>	
A NOVEL METHOD TO REDUCE THE HARMONIC CURRENTS IN THE RESIDUAL EARTH FAULT CURRENT DURING A SINGLE PHASE TO GROUND FAULT IN COMPENSATED GRIDS	1154
<i>Michael Steglich ; Christopher Löwe ; Björn Bauernschmitt ; Christian Rehtanz ; Ralf Böhm ; Jörg Franke</i>	
OPTIMIZATION FRAMEWORK FOR PEER-TO-PEER CHARGING OF ELECTRIC VEHICLES IN MULTI-AREA DISTRIBUTION NETWORKS	1159
<i>Nand K. Meena ; Jin Yang</i>	
MULTI-AGENT DEEP REINFORCEMENT LEARNING FOR ZERO ENERGY COMMUNITIES	1164
<i>Amit Prasad ; Ivana Dusparic</i>	
SMART GRIDS FALSE DATA INJECTION IDENTIFICATION: A DEEP LEARNING APPROACH	1169
<i>Helton Do Nascimento Alves ; Newton G. Bretas ; Arturo S. Bretas ; Ben-Hur Matthews</i>	
MODELLING AND SIMULATION OF HOME APPLIANCES USING ELECTRIC CIRCUIT ANALOGY: ALBANIAN CASE STUDY	1174
<i>Aulon Shabani ; Darjon Dharmo ; Denis Panxhi ; Orion Zavalani</i>	
REAL-TIME GROUPED MANAGEMENT OF ELECTRIC VEHICLE BATTERY CHARGERS (EVBCS) FOR VOLTAGE PROFILE IMPROVEMENT IN RADIAL DISTRIBUTION NETWORKS	1179
<i>M. Alparslan Zehir ; Barry Hayes ; Sasa Z. Djokic</i>	
OPERATION OF A LOW VOLTAGE DISTRIBUTION GRID IN CYPRUS AND THE IMPACT OF PHOTOVOLTAICS AND ELECTRIC VEHICLES	1184
<i>Andrews Kotsonias ; Lenos Hadjidemetriou ; Elias Kyriakides ; Yiannakis Ioannou</i>	
IC-GAMA: A NOVEL FRAMEWORK FOR INTEGRATED T&D CO-SIMULATION	1189
<i>Seyed Masoud Mohseni-Bonab ; Innocent Kamwa ; Ali Moeini</i>	
STATE FORECASTING IN DISTRIBUTION NETWORKS	1194
<i>Mitja Antoncic ; Marjan Ilkovski ; Boštjan Blažic</i>	
FLEXIBILITY QUANTIFICATION AND PRICING OF HOUSEHOLD HEAT PUMP AND COMBINED HEAT AND POWER UNIT	1199
<i>Zhengjie You ; Babu Kumaran Nalini ; Michel Zade ; Peter Tzscheutschler ; Ulrich Wagner</i>	
BLOCKCHAIN-POWERED APPLICATIONS FOR SMART TRANSACTIVE GRIDS	1204
<i>Iasonas Kouveliottis-Lysikatos ; Isidoros Kokos ; Ilias Lamprinos ; Nikos Hatzigiorgyiou</i>	
MODELING AND DESIGN OF A SYNCHRONOUS REFERENCE FRAME ENHANCED PHASE LOCKED LOOP	1209
<i>M. A. Hasan ; S. K. Parida</i>	
FEASIBILITY AND PERFORMANCE ASSESSMENT OF COMMERCIAL PV INVERTERS OPERATING WITH DROOP CONTROL FOR PROVIDING VOLTAGE SUPPORT SERVICES	1213
<i>Pedro P. Vergara ; Tam T. Mai ; Andrew Burstein ; Phuong H. Nguyen</i>	
LINEAR APPROXIMATION OF CYCLIC BATTERY AGING COSTS FOR MILP-BASED POWER DISPATCH OPTIMIZATION	1218
<i>Martin Seydenschwanz ; Kurt Majewski ; Corinna Gottschalk ; Rafael Fink</i>	
LOW VOLTAGE BENCHMARK DISTRIBUTION NETWORK MODELS BASED ON PUBLICLY AVAILABLE DATA	1223
<i>Džanan Sarajlic ; Christian Rehtanz</i>	
NONLINEAR FUZZY CONTROL BASED ON FUZZY ANTI-WINDUP OF VSC-HVDC EMBEDDED INTO AC GRID	1228
<i>E. Kamal ; B. Marinescu ; G. Denis</i>	
A REVIEW OF PHASOR ESTIMATION ALGORITHMS FOR POWER SYSTEM APPLICATIONS	1233
<i>Marian Dragomir ; Anamaria Iamandi ; Marcel Istrate ; Alin Dragomir</i>	
GPU-ACCELERATED SPARSE LU FACTORIZATION FOR POWER SYSTEM SIMULATION	1238
<i>R. Gnanavignesh ; U. Jayachandra Shenoy</i>	
SYNCHRONIZED MEASUREMENT OF POWER SYSTEM FREQUENCY AND PHASE ANGLE USING FFT AND GOERTZEL ALGORITHM FOR LOW COST PMU DESIGN	1243
<i>Atul Singh ; S. K. Parida</i>	
DOUBLE Q-LEARNING FOR DEMAND RESPONSE OF AN ELECTRIC WATER HEATER	1248
<i>Thijs Peirelinck ; Chris Hermans ; Fred Spiessens ; Geert Deconinck</i>	

VIBRATION ANALYSIS USING VARIATIONAL MODE DECOMPOSITION FOR MECHANICAL FAULT DIAGNOSIS IN THE DIVERTER SWITCH OF ON-LOAD TAP CHANGER	1253
<i>Ruilin Yang ; Dandan Zhang ; Zhenbiao Li</i>	
OPTIMAL RESIDENTIAL BATTERY SCHEDULING USING SHORT-TERM FORECASTS	1258
<i>Soumya Sahoo ; Ankush Sharma ; Saikat Chakrabarti ; Soumya Ranjan Sahoo</i>	
NOVEL METHOD FOR NUMERICAL TRANSFORMER DIFFERENTIAL PROTECTION SETTING UP USING ITS DETAILED MATHEMATICAL MODEL	1263
<i>Mikhail Andreev ; Aleksey Suvorov ; Nikolay Ruban ; Ruslan Ufa ; Alexander Gusev ; Igor Razzhivin ; Yuly Bay ; Anton Kievets ; Alisher Askarov ; Vladimir Rudnik</i>	
NONNEGATIVE WIND SPEED TIME SERIES MODELS FOR SDDP AND STOCHASTIC PROGRAMMING APPLICATIONS	1268
<i>Ugur Yildiran</i>	
PROFITABILITY ANALYSIS OF CONSUMER BATTERIES PROVIDING FREQUENCY CONTAINMENT RESERVE	1273
<i>Özge Okur ; Petra Heijnen ; Zofia Lukszo</i>	
A CONCEPTUAL FRAMEWORK FOR THE INTEGRATED STUDIES OF ENERGY TRANSFORMATION IN SMART CITIES	1278
<i>Guodong Sun</i>	
NON-REPUDIATION AND END-TO-END SECURITY FOR ELECTRIC-VEHICLE CHARGING	1284
<i>Pol Van Aubel ; Erik Poll ; Joost Rijnveld</i>	
A FUZZY CONTROL FOR A NINE-PHASE INTEGRATED ON-BOARD BATTERY CHARGER	1289
<i>Felice De Luca ; Vito Calderaro ; Vincenzo Galdi ; Antonio Piccolo</i>	
A POWER SHARING ALGORITHM FOR A HYBRID ENERGY STORAGE SYSTEM BASED ON BATTERIES	1294
<i>Francisco Díaz-González ; Mònica Aragüés-Peñalba ; Francesc Girbau-Llistuella ; Marc Llonch-Masachs ; Andreas Sumper</i>	
ASSESSMENT OF RENEWABLE ENERGY POTENTIAL IN EASTERN SUMBA MICROGRID BASED ON NUMERICAL STOCHASTIC POWER FLOW	1299
<i>Dhandis R. Jintaka ; Kevin M. Banjar-Nahor ; Vincent Debusschere ; Ngapuli Sinisuka</i>	
DISTRIBUTED GENERATION PLANNING AND OPTIMIZATION: DETERMINISTIC VERSUS HEURISTIC APPROACHES	1304
<i>Sultan S. Alkaabi</i>	
A TWO-STAGE APPROACH FOR RENEWABLE HOSTING CAPACITY ASSESSMENT	1309
<i>Xiao Xu ; Jagadeesh Gunda ; Richard Dowling ; Sasa Djokic</i>	
INERTIA EMULATION IN MULTITERMINAL HVDC NETWORKS	1314
<i>Alessio Clerici ; Simone Negri ; Enrico Tironi</i>	
AGENT-BASED DISTRIBUTED FINITE-TIME SECONDARY CONTROL OF ENERGY STORAGE SYSTEMS IN MICROGRIDS — CONTROLLER HARDWARE-IN-THE-LOOP VALIDATION	1319
<i>Tung-Lam Nguyen ; Yu Wang ; Quoc-Tuan Tran ; Raphael Caire ; Yvon Besanger</i>	
INNOVATIVE GRID OPTIMIZATION APPROACH BASED ON ARTIFICIAL NEURAL NETWORKS	1324
<i>Adrian Wenzel ; Manuela Linke ; Tobias Meßmer ; Gabriel Micard ; Gunnar Schubert ; Adrian Minde ; Matthias Kindl</i>	
SMART ENERGY TOOLS FOR BUILDINGS ENERGY MANAGEMENT	1328
<i>George Suciu ; Teodora Usurelu ; Carlos Jiménez</i>	
GRID SERVING DEPLOYMENT OF SMART METER DATA IN THE CONTEXT OF DISTRIBUTION GRID AUTOMATION	1333
<i>Schaugar Azad ; Evgeny Schmittmann ; Marcel Ludwig ; Markus Zdrallek ; Julian Zimpel ; Alexander Schalk ; Boris Brandherm ; Matthieu Deru ; Alassane Ndiaye ; Nils Neusel-Lange</i>	
ROBUST SEQUENTIAL STEADY-STATE ANALYSIS OF CASCADING OUTAGES	1339
<i>Amritanshu Pandey ; Aayushya Agarwal ; Marko Jereminov ; Martin R. Wagner ; David M. Bromberg ; Larry Pileggi</i>	
IMPACT OF SOLAR PHOTOVOLTAIC ON LFC OF INTERCONNECTED POWER SYSTEM USING I-PD CONTROLLER	1344
<i>Abhineet Prakash ; S K Parida</i>	
IDENTIFICATION AND SIMULATION OF A DENIAL-OF-SLEEP ATTACK ON OPEN METERING SYSTEM	1349
<i>Stefan Hoffmann ; Gerd Bumiller</i>	
SMART BUILDINGS AGGREGATOR BIDDING STRATEGY AS A NEGAWATT DEMAND RESPONSE RESOURCES IN THE SPINNING RESERVE ELECTRICITY MARKET	1354
<i>Amir Safari ; Mehrdad Tahmasebi ; Jagadeesh Pasupuleti</i>	

ASSESSMENT OF FREQUENCY SUPPORT FROM WIND TURBINES UNDER ALTERNATIVE CONTROL SCHEMES	1358
<i>Zhongda Chu ; Fei Teng</i>	
CELLULAR COMPUTATIONAL NETWORKS FOR DISTRIBUTED PREDICTION OF ACTIVE POWER FLOW IN POWER SYSTEMS UNDER CONTINGENCY	1363
<i>Lili Wu ; Ganesh K. Venayagamoorthy ; Jinfeng Gao</i>	
HARMONIC FILTERING IN DFIG-BASED OFFSHORE WIND FARM THROUGH RESONANCE DAMPING	1368
<i>Yonggang Zhang ; Christian Klabunde ; Martin Wolter</i>	
AGGREGATE MODEL OF MASSIVE DISTRIBUTED ENERGY STORAGE FOR POWER SYSTEM OPERATION	1373
<i>Hai Li ; Yi Wang ; Ning Zhang ; Genghe Zhang ; Xu Tian</i>	
A COST-EFFECTIVE THERMAL AND ELECTRICAL ENERGY STORAGE MANAGEMENT STRATEGY FOR SMART BUILDINGS	1378
<i>Ali Baniasadi ; Daryoush Habibi ; Waleed Al-Saedi ; Mohammad A. S. Masoum</i>	
RESEARCH ON DEMAND RESPONSE STRATEGY BASED ON STACKELBERG GAME	1383
<i>Xiong Xie ; Xue Cui</i>	
REACTIVE POWER CONTROL IN DISTRIBUTION NETWORKS TO MINIMIZE THE REACTIVE POWER BALANCE AT THE POINT OF COMMON COUPLING	1388
<i>Zita Hagemann ; Ulf Häger</i>	
INVADE FLEXIBILITY CENTRALIZED ALGORITHM TO MANAGE ELECTRIC VEHICLES UNDER DSO REQUESTS IN BUILDINGS WITH LIMITED INFORMATION	1393
<i>Pol Olivella-Rosell ; Pau Lloret-Gallego ; Sara Barja-Martinez ; Sigurd Bjarghov ; Venkatachalam Lakshmanan ; Stig Ødegaard Ottesen ; Nazir Refa ; Frank Geerts ; Roberto Villafafila-Robles ; Francisco Díaz-González</i>	
MIXED REGRESSION CLUSTERING TECHNIQUES FOR THE MEDIUM TERM PREDICTION OF REACTIVE POWER WITHIN TRANSMISSION GRIDS	1398
<i>Pierre-David Dapoz ; Zacharie De Greve ; Philippe De Pauw ; Jonathan Sprooten ; François Vallee</i>	
ELECTRIC NETWORK POWER TRANSFER FLEXIBILITY — FOCUSING ON POWER CONDUCTORS ELECTRO-MECHANICAL BEHAVIOR	1403
<i>Mohammed A. Al Aqil ; Konstantinos Kopsidas</i>	
ADVANCED SHORT-CIRCUIT CURRENT CALCULATION FOR DOUBLY-FED INDUCTION GENERATOR BASED WIND TURBINES ACCORDING TO IEC 60909	1408
<i>Thomas Lager ; Lutz Hofmann</i>	
QUANTIFYING BENEFITS OF GRID REINFORCEMENT MEASURES TO POWER SYSTEM RESILIENCE AGAINST WET SNOW EVENTS	1413
<i>C. Chemelli ; E. Ciapessoni ; D. Cirio ; P. Maracchi ; G. Pirovano ; A. Pitto ; S. Massucco ; M. Sforna</i>	
TOOLS FOR END-TO-END ANALYSIS, CALIBRATION AND TROUBLESHOOTING OF SYNCHROPHASOR SYSTEMS	1418
<i>Christoph Seidl ; Mladen Kezunovic</i>	
COLLABORATIVE LEARNING FOR CLASSIFICATION AND PREDICTION OF BUILDING ENERGY FLEXIBILITY	1423
<i>Anil Kumar ; Elena Mocanu ; Muhammad Babar ; Phuong H. Nguyen</i>	
EXPERIMENTAL RESEARCH ON THE RESPONSE TIME OF THREE-PHASE INVERTER ON GRID COUPLED TO PHOTOVOLTAIC PANELS	1428
<i>Panaitescu Fanel-Viorel ; Panaitescu Mariana ; Panait Cornel</i>	
RESEARCH OF THYRISTOR VOLTAGE REGULATOR EFFECT ON THE HARMONICS IN THE DISTRIBUTION ELECTRIC NETWORK	1432
<i>Elena Sosnina ; Sergey Petritskiy ; Sergey Iurtaev ; Evgeny Kryukov</i>	
VOLTAGE REGULATION IN DISTRIBUTION SYSTEM USING DEMAND RESPONSE	1437
<i>Aastha Kapoor ; Rajarshi Dutta ; Ankush Sharma</i>	
RENEWABLE ENERGY, CLIMATE CHANGE AND ENVIRONMENTAL CHALLENGES IN ROMANIA	1442
<i>Monica Dumitrascu ; Ines Grigorescu ; Dana Micu ; Irena Mocanu ; Alexandra Vrinceanu ; Bianca Mitrica ; Loredana Havris ; Paul Serban ; Cristina Dumitrica ; Gheorghe Kucsicsa</i>	
A UNIT COMMITMENT MODEL WITH ELECTRIC VEHICLES FLEXIBILITY: CASE OF 2030 MOROCCAN POWER SYSTEM	1447
<i>Mohamedou Macire ; Marc Petit ; Mohamed Maaroufi ; Francis Roy</i>	
AGGREGATE HARMONIC LOAD MODELS OF RESIDENTIAL CUSTOMERS. PART 1: TIME-DOMAIN MODELS	1452
<i>Z. Guo ; N. Al-Shibli ; X. Xiao ; S. Djokic ; A. Collin ; R. Langella ; A. Testa ; I. Papic ; A. Blanco ; J. Meyer</i>	
BLOCKCHAIN-BASED BILATERAL ENERGY TRANSACTION PLATFORM	1457
<i>Emi Sugiyama ; Marta Marmiroli</i>	

POWER MANAGEMENT IN ISLANDED HYBRID DIESEL-STORAGE MICROGRIDS	1462
<i>Alessandro Rosini ; Andrea Bonfiglio ; Marco Invernizzi ; Renato Procopio ; Pietro Serra</i>	
MAGNETIC FIELD CONSTRAINTS IN THE PASSENGER COMPARTMENT OF ELECTRIC VEHICLES	1467
<i>Violeta-Maria Ionescu ; Anca-Alexandra Sapunaru ; Mihai Octavian Popescu ; Claudia Laurenta Popescu</i>	
AN IMPROVED CONTROL SCHEME FOR GRID-FORMING INVERTERS	1472
<i>Yemi Ojo ; Jeremy Watson ; Ioannis Lestas</i>	
REALISTIC PEER-TO-PEER ENERGY TRADING MODEL FOR MICROGRIDS USING DEEP REINFORCEMENT LEARNING	1477
<i>Tianyi Chen ; Shengrong Bu</i>	
ELECTRIC WATER HEATER CONTROL THROUGH INFORMED FITTED Q-ITERATION	1482
<i>Christophe Patyn ; Geert Deconinck</i>	
INCREASED VALUE OF DEMAND SIDE MANAGEMENT BY RESHAPING THE LOAD DURATION CURVE WITH WIND AND SOLAR POWER	1487
<i>Jimmy Ehnberg ; Anders Mannikoff</i>	
BINARY SEARCH AND FIT ALGORITHM FOR IMPROVED VOLTAGE STABILITY BOUNDARY MONITORING	1492
<i>Christina Hildebrandt Lüthje Jørgensen ; Bahtiyar Can Karatas ; Hjörtur Jóhannsson ; Stefan Sommer</i>	
INVESTIGATION OF LOW-FREQUENCY OSCILLATIONS IN VSD DRIVEN INDUCTION MOTORS IN MICROGRIDS	1497
<i>Moudud Ahmed ; Lasantha Meegahapola ; Arash Vahidnia ; Manoj Datta</i>	
CONVERTER NONLINEAR FUZZY CONTROL OF PMSG-BASED FOR WIND ENERGY SYSTEM IN NETWORK CONTEXT	1502
<i>Elkhatib Kamal ; Bogdan Marinescu</i>	
DEVELOPMENT OF VOLTAGE-ACTUATED PROTECTION RELAY PROTOTYPE	1507
<i>P. T. Manditereza ; R. C. Bansal</i>	
LEVERAGING SOCIOECONOMIC INFORMATION AND DEEP LEARNING FOR RESIDENTIAL LOAD PATTERN PREDICTION	1512
<i>Wen-Jun Tang ; Xian-Long Lee ; Hao Wang ; Hong-Tzer Yang</i>	
ECONOMIC VALUE AND USER REMUNERATION FOR EV BASED DISTRIBUTION GRID SERVICES	1517
<i>Lisa Calearo ; Andreas Thingvad ; Hans Henrik Ipsen ; Mattia Marinelli</i>	
IMPLICITLY MODELING FREQUENCY CONTROL WITHIN POWER FLOW	1522
<i>Aayushya Agarwal ; Amritanshu Pandey ; Marko Jereminov ; Larry Pileggi</i>	
CONDITION MONITORING FOR THREE-PHASE INVERTERS WITH THE DERIVATIVE-FREE NONLINEAR KALMAN FILTER	1527
<i>G. Rigatos ; D. Serpanos ; V. Siadimas ; Pierluigi Siano ; Masoud Abbaszadeh</i>	
MINIMIZATION OF REACTIVE POWER EXCHANGE AT THE DSO/TSO INTERFACE: ÖLAND CASE	1532
<i>Michal Tomaszewski ; Stefan Stankovic ; Ingmar Leisse ; Lennart Söder</i>	
PILOT NODES SEARCHING FOR VOLTAGE REGULATION IN DISTRIBUTION SYSTEMS BY OLTC	1537
<i>Diego Pappalardo ; Vito Calderaro ; Vincenzo Galdi ; Antonio Piccolo</i>	
ENABLING DIFFERENT GCC FUNCTIONALITIES DURING NOMINAL AND SUBNOMINAL GRID CONDITIONS	1542
<i>Ivan Todorovic ; Ivana Isakov ; Stevan Grabic</i>	
AGGREGATE HARMONIC LOAD MODELS OF RESIDENTIAL CUSTOMERS. PART 2: FREQUENCY-DOMAIN MODELS	1547
<i>Z. Guo ; N. Al-Shibli ; X. Xiao ; S. Djokic ; A. Collin ; R. Langella ; A. Testa ; I. Papic ; A. Blanco ; J. Meyer</i>	
OPTIMAL OPERATION OF A RENEWABLE ENERGY POWER SYSTEM	1552
<i>Catalina Alexandra Sima ; Mihai Octavian Popescu ; Claudia Laurenta Popescu ; Mariacristina Roscia</i>	
Author Index	