## 2019 8th International Conference on Renewable Energy Research and Applications (ICRERA 2019)

Brasov, Romania
3 – 6 November 2019

Pages 1-533



**IEEE Catalog Number: ISBN:** 

CFP1935T-POD 978-1-7281-3588-5

## Copyright $\odot$ 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:
 CFP1935T-POD

 ISBN (Print-On-Demand):
 978-1-7281-3588-5

 ISBN (Online):
 978-1-7281-3587-8

ISSN: 2377-6897

## 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



CMT ID	Paper Title	Authors	Page No
7	Prediction of higher heating value HHV of date palm biomass fuel using artificial intelligence method	Bousdira Khalida (nité de Recherche Appliquée en Energies Renouvelables, URAER, Centre de Développement des Énergies Renouvelables, CDER, 47133, Ghardaïa)*	59-62
8	Energy Modeling Output of Wind System Based on Wind Speed	Abdelkader Harrouz (Department of Hydrocarbon and Renewable Energy, Laboratory (LEESI), University of Adrar, Algeria)*; Ilhami Colak (Nisantasi University); Korhan Kayisli (Nisantasi University)	63-68
10	An Optimized Decentralized Control Strategy of Grid-Connected Residential Photovoltaic Inverters Based on Voltage Sensitivity Matrix	Jinrui Tang (Wuhan University of Technology)*; Yuanchao Qiu (Wuhan University of Technology); Binyu Xiong (Wuhan University of Technology); Yang Li (Wuhan University of Technology); Chengqing YUAN (Wuhan University of Technology); Yuwei SUN (Wuhan University of Technology)	69-74
11	Techno-economic assessment of a PV/SC hybrid power system integrated into 2240 PCTC ro-ro ship	Yuanchao Qiu (Wuhan University of Technology); Chengqing YUAN (Wuhan University of Technology)*; Xujing Tang (Wuhan University of Technology); Jinrui Tang (Wuhan University of Technology); Yan Zhang (Wuhan University of Technology); Xiuqin BAI (wuhan university of technology)	75-80
14	Optimization Design and Feature Research on VSG Control Strategy of Marine Photovoltaic Grid-connected Inverter	Xujing Tang (Wuhan University of Technology); Huang Yaling (Wuhan University of Technology); Yuwei SUN (Wuhan University of Technology)*; Chengqing YUAN (Wuhan University of Technology); Hang Yu (Wuhan University of Technology)	81-88
15	Modeling and simulation of the Electrical Characteristics of the Space Satellite Prototype UCACUETEL Based on the Ecuadorian Experience PEGASO	Daniel Icaza (Catholic University of Cuenca, Cuenca, Ecuador)*; Angel Maurisio alojano Lojano (Catholic University of Cuenca, Cuenca, Ecuador); Luz Cardenas Herrera (Universidad Nacional de San Agustin); Manuel Cardenas Herrera (Universidad Nacional de San Agustín); Fernando Mejía Nova (Universidad Nacional de San Agustín); Santiago Pulla (Catholic University of Cuenca, Cuenca, Ecuador)	89-93
17	Hybrid Energy Storage System consisting of a Flywheel and a Lithium-ion Battery for the Provision of Primary Control Reserve	Panagiotis Mouratidis (Technische Universität Darmstadt)*; Benedikt Schuessler (Technische Universität Darmstadt); Stephan Rinderknecht (Technical University Darmstadt)	94-99

18	System of Generation of Energy Based on Solar Energy for the Rural Political Movements Centers.	Daniel Icaza (Catholic University of Cuenca, Cuenca, Ecuador)*; Luz Cardenas Herrera (Universidad Nacional de San Agustin); Manuel Cardenas Herrera (Universidad Nacional de San Agustín); Fernando Mejía Nova (Universidad Nacional de San Agustín); Fernando Icaza (De la Salle, Cuenca, Ecuador)	100-106
19	Power Energy Cost Reduction Effects by Applying Optimized Long-Term Storage Battery Operation Strategy	Kazufumi Yuasa (NTT FACILITIES,INC.)*; Miki Ueshima (NTT FACILITIES,INC.); Tadatoshi BABASAKI (NTT FACILITIES); Ichiro Omura (Kyushu Institute of Technology)	107-112
20	Examination of Correction Method of Long- term Solar Radiation Forecasts of Numerical Weather Prediction	Miki Ueshima (NTT FACILITIES,INC.)*; Kazufumi Yuasa (NTT FACILITIES,INC.); Tadatoshi BABASAKI (NTT FACILITIES); Ichiro Omura (Kyushu Institute of Technology)	113-117
21	A Grid-Connected PV Multilevel Cascaded Inverter System Based on Single and Three- Phase Two-Level Inverters	V. Fernao Pires (ESTSetubal/IPS)*; Joaquim Monteiro (ISEL – Polytechnic Institute of Lisboa); José Silva (INESC-ID, IST, Universidade de Lisboa)	118-123
22	Internal Model Repetitive Control for an Active Power Filter	Costin F Ciusdel (UnitBV)*; Ioan Serban (Transilvania University of Brasov)	124-130
23	A Skewness Based Method for Diagnosis in Quasi-Z T-Type Grid-Connected Converters	Tito Amaral (ESTSetubal/IPS)*; V. Fernao Pires (ESTSetubal/IPS); Armando Cordeiro (ISEL - IPL); Daniel Foito (ESTSetubal - IPS)	131-136
25	Bi-directional Multiport Converter for Utilizing Green Base Stations as Virtual Power Plant	Masaki Nakamura (NTT DOCOMO, INC.)*	137-141
27	Power Factor Control in Buildings by Air Conditioners with Built-in Active Filters	Masaki Kono (DAIKIN INDUSTRIES,LTD.)*	142-145
38	An Impedance Based Modeling Towards the Aging Prediction of Lithium-Ion Battery for EV Applications	Federico M Ibanez (Skolkovo Institute of Science and Technology)*; Tanvir Ahmed (Skolkovo Institute of Science and Technology); Ildar Idrisov (Skolkovo Institute of Science and Technology); Jose Sebastian Gutierrez (Universidad Panamericana)	146-151
39	Optimal design methodology for high-power interleaved bidirectional buck-boost converters for supercapacitors in vehicular applications	Arnur Karbozov (Skolkovo Institute of Science and Technology); Federico M Ibanez (Skolkovo Institute of Science and Technology)*	152-157
40	Optimizing hybrid energy supply systems of residential building districts	Georg Franke (Technische Universität Darmstadt)*; Jan Haccius (Technische Universität Darmstadt); Stephan Rinderknecht (Technical University Darmstadt); Maximilian Schneider (Technische Universität Darmstadt); Timm Weitzel (Technische Universität Darmstadt)	158-163
41	Study of Potential and Utilization of Regenerative Power in Electirc Railway	Takashi Yoshinaga (East Japan Railway Company)*; Kota Minaminosono (East Japan Railway Company); Makoto Hashimoto (East Japan Railway Company)	164-168

42	Hybrid Sepic-Cúk DC-DC Converter Associated to a SRM Drive for a Solar PV Powered Water Pumping System	Armando Cordeiro (ISEL - IPL)*; Miguel Chaves (ISEL - Instituto Superior de Engenharia de Lisboa); Hiren Canacsinh (ISEL - Instituto Superior de Engenharia de Lisboa); Ricardo Luis (ISEL - Instituto Superior de Engenharia de Lisboa); V. Fernao Pires (ESTSetubal/IPS); Daniel Foito (ESTSetubal - IPS); Armando Pires (Polytechnical Institute of Setubal); J. F. Martins (FCT/UNL)	169-174
43	ILQ optimal voltage control for Biomass Free-Piston Stirling Engine	Ka Ahmadou (shibaura Institute of technology)*; Yusuke Nakamura (Department of Electrical Engineering and Computer science,); Massahiro Fujiwara (Faculty of engineering, and deparment of Electrical Engineering); Hiroshi Takami (Shibaura Institute of Technology); Kazuki Sato (Faculty of engineering, and deparment of Electrical Engineering)	175-180
44	Influence of an Impulse Current near a Photovoltaic Solar Module on Bypass Diode Characteristics	Yudai Fujimoto (National Institute of Technology, Ube College); Kenta Nakamoto (National Institute of Technology, Ube College); Ikuo Nanno (National Institute of Technology, Ube College); Toshiyuki Hamada (National Institute of Technology, Ube College)*; Norio Ishikura (National Institute of Technology, Yonago College); Shinichiro Oke (National Institute of Technology, Tsuyama College); Masayuki Fujii (National Institute of Technology, Oshima College); Takashi Oozeki (National Institute of Advanced Industrial Science and Technology, AIST)	181-185
45	Hardware implementation of a synthetic inertia system for grid stability	Martin Fregelius (Uppsala University)*, Urban Lundin	186-190
46	Model-based load estimation for wind turbine blade with Kalman filter	Kazuo Muto (Hitachi, Ltd.)*; Nobuo Namura (Hitachi, Ltd.); Yosuke Ueki (Hitachi, Ltd.); Norio Takeda (Hitachi, Ltd.)	191-199
47	Performance Analysis Of Decoupling DC- Link Capacitors For A SiC-MOSFET- Inverter Module	Matthias Spieler (Infineon Technologies AG)*, Omar Vanegas, Galek Marek Department Of Electrical Engineering And Information Technology University Of Applied Sciences Munich	200-205
48	A Water Pumping Photovoltaic Powered System Based on a DC-DC Converter with Dual Output and Extended Voltage e Gain	Daniel Foito (ESTSetubal - IPS)*; Armando Cordeiro (ISEL - IPL); Tito Amaral (ESTSetubal/IPS); V. Fernao Pires (ESTSetubal/IPS)	206-211
49	A novel design of solid oxide fuel cell-based combined cooling, heat and power residential system in the UK	Xinjie Yuan (University College London)*; Yuanchang Liu (University College London); Richard Bucknall (University College London)	212-217

50	The water production system with Peltier element and Photovoltaic	Atsushi Nakajima (Tokyo Denki University)*; Shigeo Masukawa (Tokyo Denki University)	218-223
51	Output Characteristics of Energy Harvesting Using Multiple Energy Sources	Toshihiko Ishiyama (Hachinohe Institute of Technology)*	224-228
52	Impacts of Wind Speed and Humidity on the Performance of Photovoltaic Module	Ilhami Colak (Nisantasi University); Faten Faten Ayadi (ENIS)*; Naci Genc (Van Yuzuncu Yil University); Halil Ibrahim BULBUL (Gazi University)	229-233
53	Case study for battery bank subsidization	Heiki Lill (Estonian University of Life Sciences)*; Alo Allik (Estonian University of Life Sciences); Andres Annuk (Estonian University of Life Sciences)	234-238
63	Sustainable Energy: A Strategic Overview of Fuel Cells	Gomer Abel Rubio (ESPOL)*, W. Agila	239-243
64	Transient Analisys in Proton Exchange Membrane Fuel Cells: A Critical Review and a Novel Model	Gomer Abel Rubio (ESPOL)*, W. Agila	244-252
66	Planning of Stand-alone Systems through Statistical Analysis	Guido J Rostegui (Universidade de Sao Paulo)*; Luis Timaná (Universidade de Sao Paulo); Matheus M F Gemignani (Universidade de Sao Paulo)	253-258
69	Fault Characterization of Radial AC Microgrid Containing Multiple Distributed Energy Resources at Medium and Low Voltage Levels	Nicholas Hoeft (University of Wisconsin- Milwaukee); Mark Vygoder (University of Wisconsin - Milwaukee)*; Robert Cuzner (UW-Milwaukee)	259-264
70	Selection and Structural Design of Reactive Power Compensators for a 200 MW Floating Offshore Wind Farm	Ga-Eun Jung (Changwon National University); MINH CHAU DINH (Changwon National University); Sung Hae-Jin (Changwon National University); Jae-In Lee (Changwon National University); Park Minwon (Changwon National University)*	265-269
72	Simplified Floating Offshore Wind Turbine Model for Time-domain Simulation	MINH CHAU DINH (Changwon National University)*; THAI-THANH NGUYEN (Incheon National University); MINWON PARK (Changwon National University)	270-275
73	Linearized Model of Power System with Synchronous Generator, Variable Renewable Energy Generation and Load	Satoshi Sakurai (Sophia university)*; Orie Sakamoto (Sophia university); Tanzo Nitta (Sophia university)	276-279
76	Characteristics of Wireless Power Transfer System According to The Shape of Magnetic Path	Pyungho SO (HANBAT NATIONAL UNIVERSITY); Jisu AN (HANBAT NATIONAL UNIVERSITY); Hyunwoo YOU (HANBAT NATIONAL UNIVERSITY); Byoung-Hee Lee (Hanbat National University)*	280-282
77	Research on Wireless Power Transfer for Electronic Device	Yeongseong KIM (HANBAT NATIONAL UNIVERSITY); Kang-Hyun Yi (Daegu University); Jisu AN (HANBAT NATIONAL UNIVERSITY); Hyunwoo YOU (HANBAT NATIONAL UNIVERSITY); Byoung-Hee Lee (Hanbat National University)*	283-286

81	Minimizing Active/Reactive Power Losses in Electricity Networks Based on Optimal Location of Battery Energy Storage System	Salem AlShahrani (King Fahd University)*; Mohammad AlMuhaini (King Fahd University of Petroleum and Minerals); Muhammad Khalid (King Fahd University of Petroleum and Minerals (KFUPM))	287-294
82	Optimal Scheduling of Power Generation Units using Differential Evolution Approach: A Case Study	Hussain A Alharthi (King Fahd University of Petroleum and Minerals)*; Jaber Alshehri (King Fahd University of Petroleum and Minerals); Muhammad Khalid (King Fahd University of Petroleum and Minerals (KFUPM))	295-300
83	SVC-based Controller Design via Ant Colony Optimization Algorithm	and Minerals (KFUPM)); Abubaker Hassan (King Fahad University for Petroleum and Minerals)	301-308
84	Experimental Investigation of Fuzzy Logic Controller Based Indirect Current Control Algorithm for Shunt Active Power Filter	Ahmed Bouhouta (Research Laboratory of Electrical Engineering & Automatic, LREA, University of Médéa); Samir Moulahoum (University of Médéa)*; Nadir Kabache ("Research Laboratory LREA, University of Médéa"); Ilhami Colak (Nisantasi University)	309-314
86	Back-Up-Capacity Prediction in a Power- Grid Dominated by Renewable Electricity	Bernhard Hoppe (Darmstadt University of Applied Science)*	315-319
87	Distributed Control of Battery Energy Storage System in a Microgrid	Jie Ma (Lancaster University)*; Xiandong Ma (Lancaster University)	320-325
88	Li-Ion energy storage capacity estimation in residential applications with EV	Luminita Barote (Transilvania University of Brasov)*; Corneliu Marinescu (Transilvania University of Brasov)	326-330
90	Diesel engine waste heat recovery potential versus driving cycles	Venetia SANDU (Transilvania University)*; Adrian S Mazilu (Universitatea Transilvania Brasov)	331-336
91	New approach for Smart Community Grid through Blockchain and smart charging infrastructure of EVs.	Mariacristina Roscia ("University of Bergamo, Italy")*; cristian lazaroiu (university of Bergamo)	337-341
92	Smoothing Methodologies for Photovoltaic Power Fluctuations	Ammar Atif Abdalla (King Fahd University of Petroleum and Minerals (KFUPM))*; Muhammad Khalid (King Fahd University of Petroleum and Minerals (KFUPM))	342-346
93	Comparative Analysis of ABC, Bat, GWO and PSO Algorithms for MPPT in PV Systems	Maykon Rocha (Federal University of Techonology); Leonardo P Sampaio (Federal University of Techonology)*; Sérgio Oliveira da Silva (Federal University of Techonology)	347-352
94	Dynamic Model of Proton Exchange Membrane Fuel Cells: A Critical Review and a Novel Model	Gomer Abel Rubio (ESPOL)*, W. Agila	353-358
96	Supercapacitors Characterization using Impedance Spectroscopy and taking account dynamics contraints and their combinations	Cheikh tidiane sarr (greah)*; Mamadou Bailo (Le Havre University); Brayima DAKYO ("University Of Le Havre, France")	359-364
97	Integrating autonomous dc microgrids on the basis of a plant/controller modular formulation of individual DERs	Despoina Ioannis Makrygiorgou (University of Patras)*; Antonio Alexandridis (University of Patras)	365-370

99	Effects of Price Developments on Photovoltaic Panel to Inverter Power Ratios	Alo Allik (Estonian University of Life Sciences)*; Heiki Lill (Estonian University of Life Sciences); Andres Annuk (Estonian University of Life Sciences)	371-376
100	Electric Field Computation Under a Double Circuit 380KV Overhead Transmission Line	Jaber Alshehri (King Fahd University of Petroleum and Minerals ); Abdulaziz Alshalawi (Saudi Aramco)*; Muhammad Khalid (King Fahd University of Petroleum and Minerals (KFUPM))	377-380
101	Optimal Control of a Microgrid with Distributed Renewable Generation and Battery Energy Storage	Jaber Alshehri (King Fahd University of Petroleum and Minerals )*; Ahmed H Alzahrani (king fahd university of petroleum and minerals); Fahad Ismail (KFUPM); Muhammad Khalid (King Fahd University of Petroleum and Minerals (KFUPM))	381-385
103	Statistical Modeling of Solar Irradiance for Northeast Brazil	Luis F. N. Lourenco (University of Sao Paulo)*; Amanda Fernandes (University of Sao Paulo); Jose Roberto Cardoso (University of Sao Paulo); Renato Machado Monaro (Universidade de São Paulo)	386-391
106	Evaluating heat current through concrete crush for heat storing application	J. Birgitta Martinkauppi (University of Vaasa)*; Erkki Hiltunen (University of Vaasa)	392-396
108	Optimal Charging Scheduling of Electrical Vehicles in a Residential Microgrid based on RES	Catalin P Ion (Transilvania University of Bra)*; Corneliu Marinescu (Transilvania University of Brasov)	397-400
109	Estimation of Photovoltaic Panel Parameters by a Numerical Heuristic Searching Algorithm	Oumaima Mesbahi (University of Évora)*; Mouhayedine tlemcani (Evora); Fernando Janeiro (University of Évora); abdelowahed hajjaji (University of Chouaib Doukkali); Khalid Kandoussi (University of Chouaib Doukkali)	401-406
110	Sizing and Allocation for Solar Energy Storage System Considering the Cost Optimization	Mohamed Elsir (King Fahd University of Petroleum & Minerals); Mohammed A Abdulgalil (King Fahd University of Petroleum & Minerals)*; Ali T. Al-Awami (King Fahd University of Petroleum & Minerals); Muhammad Khalid (King Fahd University of Petroleum and Minerals (KFUPM))	407-412
111	Earthing Arrangements Impacts on Protection Schemes for a Residential Microgrid	Farzad Banihashemi (University of Wisconsin, Milwaukee); Mark Vygoder (University of Wisconsin - Milwaukee)*; Nicholas Hoeft (University of Wisconsin-Milwaukee); Robert Cuzner (UW-Milwaukee)	413-421

112	Energy Management Strategy Considering Battery Efficiency for Grid-Tied Microgrids During Summer in the Kingdom of Saudi Arabia	Umar Salman (King Fahd University of Petroleum and MInerals); Mohammed A Abdulgalil (King Fahd University of Petroleum & Minerals)*; Wasiu O Sulaimon (King Fahd University of Petroleum and Minerals); Muhammad Khalid (King Fahd University of Petroleum and Minerals (KFUPM))	422-427
114	Stacking-Based Ensemble of Support Vector Regressors for One-Day-Ahead Solar Irradiance Prediction	Rami A AL-HAJJ (American University of the Middle East)*; Ali ASSI (The International University of Beirut); Mohamad Fouad (Mansoura University)	428-433
115	A Reactive Power Compensation Strategy in Radial Distribution Network with High PV Penetration	Khalid A Khan (King Fahd University of Petroleum and Minerals)*; Muhammad Khalid (King Fahd University of Petroleum and Minerals (KFUPM))	434-438
116	Using Biomass Gasification for Small Scale Power Generation Systems: Specifications of the Conceptual Framework	Fernanda O. Resende (University of Aveiro, Escola Superior de Tecnolgia e Gestão de Águeda)*	439-444
119	A low cost maximum power point tracker with the hybrid algorithm that uses temperature measurement	Janusz Mroczka (Wrocław University of Science and Technology); Mariusz Ostrowski (Wrocław University of Science and Technology)*	445-449
123	Economical Evaluation of an Isolated AC Offshore Grid for Pre-salt Oil Production Based on Power Hub for Reducing Carbon Emissions	Luis F. N. Lourenco (University of Sao Paulo)*; Renato Machado Monaro (Universidade de São Paulo); Mauricio B C Salles (University of Sao Paulo)	450-454
124	Real-Time Qualitative Model for Estimate Water Content in PEM Fuel Cell	Gomer Abel Rubio (ESPOL)*; Wilton Edixon Agila (ESPOL); Luis Miranda (ESPOL); Byron Lima (UPS)	455-459
125	Dynamic Simulation of Battery/Supercapacitor Hybrid Energy Storage System for the Electric Vehicles	Wahiba Yaici (CanmetENERGY/Natural Resources Canada)*; Lia Kouchachvili (CanmetENERGY/Natural Resources Canada); Evgueniy Entchev (CanmetENERGY/Natural Resources Canada); Michela Longo (Politecnico di Milano)	460-465
126	Analysis on Hotspot Technologies and Cutting-edge Technologies of Organic Solar Cells Based on Patent Data	Qimei Chen (National Science Library, Chinese Academy of Sciences)*; Fang Chen (National Science Library, Chinese Academy of Sciences)	466-470
128	Aggregation of Wind, Photovoltaic and Thermal Power with Demand Response	Isaias Gomes (IDMEC, Instituto Superior Técnico, Universidade de Lisboa); Melicio Rui (IDMEC, Instituto Superior Técnico, Universidade de Lisboa)*; Victor Mendes (CISE, Electromechatronic Systems Research Centre, Universidade da Beira Interior)	471-476

129	Aerostat Powered by PV Cells: hot-spot effect	Isaias Gomes (IDMEC, Instituto Superior Técnico, Universidade de Lisboa); Melicio Rui (IDMEC, Instituto Superior Técnico, Universidade de Lisboa)*; Victor Mendes (Instituto Superior de Engenharia de Lisboa); Paulo Gordo (European Space Agency); Tiago Pardal (OMNIDEA, Lda)	477-482
130	A Distributed Self-Healing Method for Active Distribution Systems	Mehdi Monadi (Shahid Chamran University)*; Hossein Farzin (Shahid Chamran University of Ahvaz); Pedro Rodriguez (Loyola University Andalusia)	483-488
131	Design Considerations for GaN Based Converters	Ilan Aharon (Ariel University)*, Moshe Sitbon and Joseph Bernstein	489-493
132	Multi-Receiver Dynamic Wireless Charging System's Architecture as a Means to Mitigate Votlage Pulsations at the Receiver: A Simulation Study	Maxim Lu (Electrical and Computer Engineering Department, Nazarbayev University)*; Bexultan Nursultan (Nazarbayev University); Aidyn Zhambyl (Nazarbayev University); Yerniyaz Tolegen (Nazarbayev University); Aidar Tleubayev (Nazarbayev University); Mehdi Bagheri (Electrical and Computer Engineering Department, Nazarbayev University); Alex James (Electrical and Computer Engineering Department, Nazarbayev University)	494-499
134	Discrimination on Internal and External Faults using Differential Protection Schemes for Doubly Fed Induction Generator	Renato Machado Monaro (Universidade de São Paulo)*; Mauricio B C Salles (University of Sao Paulo); Willian Gustavo dos Santos (University of Sao Paulo)	500-504
136	AI concepts for Demand Side Shedding Management in Libya	ALI A.A. ALARBI (Loughborough University)*; Dani Strickland (Loughborough University); Richard Blanchard (Loughborough University)	505-510
143	Electrical Power distribution status in West Africa: Assessment and Perspective Overview	S.M.Kadri, A.O.Bagré, M.B.Camara, B. Dakyo, Y.Coulibaly	511-515
144	Grid-Connected PV Using Sliding Mode Based on Incremental Conductance MPPT and VSC	SALOUA MARHRAOUI (Department of Electrical Engineering, Mohammadia School of Engineers (EMI), Mohammed V University in Rabat)*; Ahmed ABBOU (Electric Engineering Department, The Mohammadia School's of Engineers Mohammed V University Agdal Rabat); Nezha El hichami (Electric Engineering Department, The Mohammadia School's of Engineers Mohammed V University Agdal Rabat); Salah Eddine Rhaili (Department of Electrical Engineering, Mohammadia School of Engineers (EMI), Mohammed V University in Raba); Mehmet Rida TUR (Batman Üniversitesi TBMYO Department of Electrical and Energy)	516-520

148	Loss Analysis and Temperature Measurement of Middle Frequency Transformer Applied for Solid State Transformer	Noriyuki Kimura (Osaka Institute of Technology)*; Kazushige Nakao (Fukui University of Technology); Toshimitsu Morizane (Osaka Institute of Technology)	521-526
149	Stable Operation of Automotive Photovoltaic System under Moving Partial Shade.	Yosuke Tomita (NISSAN MOTOR CO.,LTD.)*	527-533
150	Disturbance Rejection Control Strategy of Hybrid Battery/Super Capacitors Power System Based on a Single Converter	Yue Zhou (FC Lab,UTBM,Université Bourgogne-Franche-Comté)*; Hussein Obeid (FC Lab,UTBM,Université Bourgogne- Franche-Comté); Salah Laghrouche (Unknown); Mickael Hilairet (FC Lab, UTBM, Université Bourgogne-Franche- Comté); Abdesslem Djerdir (UTBM)	534-539
151	Transformer Winding Modelling to Study the Effect of Inter-disk Faults on Frequency Response Signature	Venera Nurmanova (Electrical and Computer Engineering Department, Nazarbayev University)*; Yerbol Akhmetov (Nazarbayev University); Maxim Lu (Electrical and Computer Engineering Department, Nazarbayev University); Mehdi Bagheri (Electrical and Computer Engineering Department, Nazarbayev University); Toan Phung (UNSW)	540-544
152	Optimized Integration of Solar PV Energy on to Telecom Power Systems for DC and A/C buses or Energy Storages with proposed Converters to make them as profit centers.	Kasun C Wijesinghe (Edotco Services Lanka Limited.)*	545-550
154	Experimental Investigation of Efficiency Map for an Inverter-fed Surface-mount Permanent Magnet Synchronous Motor	Milad Golzar (University of Agder)*; Khang Huynh (University of Agder); Martin Marie Hubert Choux (University of Agder); Alf Magne Midtbø Versland (Flekkefjord Elektro Ltd.)	551-556
155	An embedded microcontroller unit for PV module monitoring and fault detection	Paul Nicolae Borza (Transilvania University of Brasov)*; Eleni Kaplani (University of East Anglia)	557-562
157	Applying a Novel Soft Switching Technique to Three-Phase Active Power Filter	Keivan Behzadpour (JDEVS)*, Mohammad Reza Amini (Department of Electrical Engineering, Isfahan (Khorasgan) Branch Islamic Azad University)	563-567
158	Prospective sites for solar-powered permafrost stabilization systems integration in Russian railways	Egor Loktionov (Bauman Moscow State Technical University)*; Ibragim Asanov (Moscow Power Engineering Institute (National Research University)); Elizaveta Sharaborova (Bauman Moscow State Technical University)	568-572
161	Integration into a platform real-time of distributed generation	Angel Maurisio alojano Lojano (Catholic University of Cuenca, Cuenca, Ecuador)*; Diego Morales (Universidad Católica de Cuenca, Cuenca, Ecuador); Ricardo Medina (Universidad Católica de Cuenca, Cuenca, Ecuador); Javier Gonzalez (Universidad Católica de Cuenca, Ecuador)	573-581

167	Voltage data collection using Arduino and Matlab of a photovoltaic wind power system in the locality of Tarqui the Cuenca Ecuador	Angel Maurisio alojano Lojano (Catholic University of Cuenca, Cuenca, Ecuador)*; Paul Lojano (Universidad de Barcelona); Daniel Icaza (Catholic University of Cuenca, Cuenca, Ecuador); Diego Morales (Universidad Católica de Cuenca, Cuenca, Ecuador)	582-586
169	Frequency and Voltage Control of Island System using Power Hardware In the Loop	Solomon Oyegoke (University of Greenwich)*; Yehdego Habtay (University of Greenwich); Marios Maniatopoulos (National Technical University of Athens); Simeon Keates (Edinburgh Napier University)	587-592
170	A High Frequency Power Transformer for isolated and bidirectional DC-DC Converter used for MVDC Collection System in Wind Farms	Rasoul Hosseini (UW-Milwaukee)*; Robert Cuzner (UW-Milwaukee)	593-598
171	Analysis of Class-E Rectifier with Low Output-Filter Inductance	A siya (chiba University)*; Tatsuki Ohsato (Chiba University); Xiuqin Wei (Nil); Kien Nguyen (Chiba University); Hiroo Sekiya (Chiba University)	599-602
172	Potential Sources of Renewable Energy for the Energy Supply in the City of Cuenca- Ecuador with Towards a Smart Grid	Daniel Icaza (Catholic University of Cuenca, Cuenca, Ecuador)*, David Borge-Diez (Departamento de Ingeniería Eléctrica y de Sistemas y Automática Universidad de León)	603-610
175	Improving the Life-Cycle and SOC of the Battery of a Modular Electric Vehicle using Ultra-Capacitor	Arif Şenol Şener (Nişantaşı University)*	611-614
176	Ultra-High Bandwidth GaN-Based Class-D Power Amplifier for Testing of Three-Phase Mains Interfaces of Renewable Energy Systems	Pascal S Niklaus (ETH Zurich)*, Jon Azurza Anderson, Dominik Bortis and Johann W. Kolar	615-622
178	Effects of the HVDC System on Converter Transformers	Marcos V. Czernorucki (University of Sao Paulo); Mauricio B C Salles (University of Sao Paulo)*; Andre S. Melo (University of Sao Paulo); Eduardo C. M da Costa (University of Sao Paulo); Luigi Piegari (Politecnico di Milano)	623-630
179	Characteristics of Failure SiC Schottky Barrier Diode and Si Schottky Barrier Diode using Induced Lightning Serge Application Test	Toshiyuki Hamada (National Institute of Technology, Ube College)*; Kenta Nakamoto (National Institute of Technology, Ube College); Takumi Kashiwaya (National Institute of Technology, Ube College); Ikuo Nanno (National Institute of Technology, Ube College); Norio Ishikura (National Institute of Technology, Yonago College); Shinichiro Oke (National Institute of Technology, Tsuyama College); Masayuki Fujii (National Institute of Technology, Oshima College)	631-634
180	Wind Power Volatility Alleviation Considering Battery systems and Responsive Loads: A Stochastic Framework	Amirhossein Khazali (Loyola Tech)*; Pedro Rodriguez (Loyola University Andalusia)	635-638

181	Delayed Current Zero in Synchronous Compensator Plants	Priyanka Gugale (ABB Switzerland Ltd )*; Alexander Antoniadis (ABB Switzerland Ltd); Mirko Palazzo (Product/Equipment developer)	639-644
182	Design and Optimization of Electric Cars. A Review of Technological Advances	Ferruh Altun (Erciyes University); Sezai Alper Tekin (Erciyes University); Seyfettin Gürel (Erciyes University)*; Mihai Cernat (Transilvania University of Brasov)	645-650
183	Output Voltage Control of Hydrogen Engine Generator by Cascade Control using Hydrogen Flow Rate Estimation Scheme	HIKARI NITTA (Tokyo University of Science)*; Nobukazu Hoshi (Tokyo University of Science); KAZUHITO FUKUDA (DAYTONA CORPORATION)	651-656
185	Transient Response Improvement Method with State Space Control \\for Triple Active Bridge DC/DC Converter	Takanobu OHNO (Tokyo University of Science)*; Nobukazu Hoshi (Tokyo University of Science)	657-662
188	A New Control Method of One-Switch Wireless V2H with a Combination of Resonant Selector and Voltage Changer	Tatsuya Takahashi (Osaka Institute of Technology)*; Hideki Omori (Osaka Institute of Technology); Masahito Tsuno (Nichicon Co. Ltd.); Toshimitsu Morizane (Osaka Institute of Technology); Noriyuki Kimura (Osaka Institute of Technology)	663-667
191	Impact of RES Penetration on the Frequency Dynamics of the 500 kV Vietnamese Power System	Rossano Musca (University of Palermo)*; Eleonora Riva Sanseverino (University of Palermo); Salvatore Favuzza (University of Palermo); Gaetano Zizzo (DEIM University of Palermo); Milagros Navarro Navia (Università di Palermo); Ninh Nguyen Quang (Institute of Energy Science)	668-672
192	Efficiency Improvement for Diode- Clamped Linear Amplifier using Unequally Divided Voltage Power Supply	Junnosuke Haruna (Utsunomiya University)*; Yusuke Matano (Utsunomiya University); Hirohito Funato (Utsunomiya University)	673-679
193	Analysis of Passive Filters for PV Inverters Under Variable Irradiances	Muhammed Karaca (Van Yuzuncu Yil University); Ali Mamizadeh (Van Yuzuncu Yil University); Naci Genc (Van Yuzuncu Yil University)*; Adem Sular (Van Yuzuncu Yil University)	680-685
194	Balanced Phase Sequential Controller for Zero Circulating Current in Grid Connected Modular Solar Inverters	Baibhav Kumar Gupta (IIT, Ropar)*, K.Ramchandra Sekhar, Amol Ishwarrao Gedam	686-691
195	Asynchrony Estimation of Solar Irradiance by Quantification of Joint Recurrence Plot	Takahiro Takamatsu (Tokai University)*; Kei Yaginuma (Tokai University); Takashi Nakajima (Tokai University)	692-695
196	The Closed Loop Controller Gain Characterization for Enhanced Current Quality in Solar Inverters coupled with Weak Grid	Ramachandra K Sekhar (Indian Institute of Technology, Ropar)*	696-701
198	Performance Analysis of DC Grid Connected PV System Under Irradiation and Temperature Variations	Ece Kurt (Bahcesehir University)*; Gurkan Soykan (Bahcesehir University)	702-707
202	Low Maintenance Alkaline Water Electrolysis	G. N. Reddy (Lamar University)*; Vijaya Krishna Teja Bangi (Lamar University); Ramesh Guduru (Lamar University)	708-711

203	Optimum Facility Design in Large Hospital using Renewable Energy	Yuji Mizuno (Osaka Electro-Communication University)*; Yoshito Tanaka (Nagasaki Institute of Applied Science); Fujio Kurokawa (Nagasaki Institute of Applied Science); Nobumasa Matsui (Nagasaki Institute of Applied Science)	712-716
204	A Study of a Newly Developed Kelvin- Source Driven SiC-VMOSFET on a High- Power Single-Ended Wireless EV Charger	Taichi Iwanaga (Osaka Institute of Technology)*; Hideki Omori (Osaka Institute of Technology); Kunihiro Sakamoto (Advanced Industrial Science and Technology); Toshimitsu Morizane (Osaka Institute of Technology); Noriyuki Kimura (Osaka Institute of Technology)	717-721
207	The World's First Small Power Modulation Injection Approach for Inertia Estimation and Demonstration in the Island Grid	Naoki Hosaka (Tokyo Electric Power Company Holdings, Inc.)*; Brian Berry (Reactive Technologies); Satoshi Miyazaki (TEPCO)	722-726
209	Smart Power System Operation with Dynamic Thermal Limits on Critical Transmission Lines and Integration of Large PV Systems	Bader Alharbi (University of Birmingham)*; Dilan Jayaweera (University of Birmingham)	727-732
210	Wind Turbine Generator Emulator with Current Control mode	Satoshi Nagai (Nagaoka University of Technology)*; Kouki Tokui (Nagaoka University of Technology); Hiroki Watanabe (Nagaoka University of Technology); Jun-ichi Itoh (Nagaoka University of Tec.)	733-738
211	Isolated DC to Single-phase AC Converter with Active Power Decoupling Capability for Battery Storage System	Nagisa Takaoka (Nagaoka University of Technology); Hiroki Watanabe (Nagaoka University of Technology); Jun-ichi Itoh (Nagaoka University of Tec.)	739-743
215	A New 6kW Wireless V2H System with Synchronized Parallel Bidirectional Single- Ended Converters and Bi-Fila Coils	Junnosuke Nohara (Osaka institute of technology)*; Hideki Omori (Osaka Institute of Technology); Masahito Tsuno (Nichicon Co. Ltd.); Noriyuki Kimura (Osaka Institute of Technology); Toshimitsu Morizane (Osaka Institute of Technology)	744-748
216	Operating limits of battery charge controllers	Belarbi Mustapha (University Ibn Khaldoun Tiaret)*; Diaa Eddine Kacher (University Ibn Khaldoun Tiaret); Zakaria Hallouz (University Ibn Khaldoun Tiaret)	749-754
217	A Multiport Bidirectional LLC Resonant Converter for Grid-Tied Photovoltaic- Battery Hybrid Systems	Adel Nasiri (University of Wisconsin Milwaukee)*; Necmi Altin (UW-Milwaukee); Garry Jean-Pierre (UW-Milwaukee)	755-760
218	Complete Design of a High Frequency Medium Voltage Multi-Port Transformer	Adel Nasiri (University of Wisconsin Milwaukee)*; Necmi Altin (UW-Milwaukee); Saban Ozdemir (UW-Milwaukee); Ahmad El Shafei (UW-Milwaukee); Garry Jean-Pierre (UW-Milwaukee)	761-766

219	A New Ultra - Capacitor Driven Dynamic WPT Scooter System	Keisuke Kawashima (osaka institute of technology)*; Hideki Omori (Osaka Institute of Technology); Noriyuki Kimura (Osaka Institute of Technology); Toshimitsu Morizane (Osaka Institute of Technology)	767-772
220	Optimized Power System Planning for Base Transceiver Station (BTS) based on Minimized Power Consumption and Cost	Huzaifa Rauf (Lahore University of Management Sciences)*; Hassan Abbas Khan (Lahore University of Management Sciences); Naveed Arshad (Lahore University of Management Sciences)	773-779
221	Reliability assessment of Modular Multilevel Converters by industrial and military prediction models	Giorgio Graditi (ENEA Portici)*; Giovanna Adinolfi (ENEA -Italian National Agency for New Technologies, Energy and Sustainable Economic Development-); Valeria Palladino (ENEA -Italian National Agency for New Technologies, Energy and Sustainable Economic Development-); Maria Valenti (ENEA)	780-785
222	Verification of Device Model by Measuring Capacitance and Static Characteristics for Predicting Switching Waveform	Kengo Koki (Okayama University)*; Masahiko Yoshioka (Okayama University); Kazuhiro Umetani (Okayama University); Eiji Hiraki (Okayama University)	786-792
223	Axial Heating Coil Structure for Reducing Magnetic Levitation Force of All-Metal Type Induction Cookers	Koki Kamaeguchi (Okayama University)*; Kazuhiro Umetani (Okayama University); Eiji Hiraki (Okayama University)	793-798
227	New nanotechnology structures CNTFET GaAs	Mohammed Salah Benbouza (Université de Batna2)*, D. Hocine University Tizi-Ouzou, Y. Zid University Batna1, Institute of Physics, A. Benbouza University USTHB, Institute of Physics	799-803
228	PV Power Based Duty Cycle Control of Quasi-Resonant Inverter for Induction Cooking	Adem Sular (Van Yuzuncu Yil University); Ali Mamizadeh (Van Yuzuncu Yil University); Naci Genc (Van Yuzuncu Yil University)*; Muhammed Karaca (Van Yuzuncu Yil University)	804-809
230	A New Position Detecting Method for Wireless EV Charger	Institute of Technology); Noriyuki Kimura (Osaka Institute of Technology); Daisuke Uchimoto (Rohm)	810-814
231	Projection of a Renewable Energy System for the Observatory of Extraterrestrial Life in Ecuador and Peru. Case Study Galapagos.	Angel Maurisio alojano Lojano (Catholic University of Cuenca, Cuenca, Ecuador)*; Daniel Icaza (Catholic University of Cuenca, Cuenca, Ecuador); Luz Cardenas Herrera (Universidad Nacional de San Agustin); Fernando Mejía Nova (Universidad Nacional de San Agustín); Manuel Cardenas Herrera (Universidad Nacional de San Agustín)	815-820

	T	THE COLL OF COLUMN	
232	The Effects of PR Control in Three-Level Single-Phase Multilevel Inverter	Ilhami Colak (Nisantasi University); Ersan Kabalci (Nevsehir University); Gokhan KEVEN (Nevsehir Hacı Bektas Veli University)*	821-826
233	Comparison between Norton Impedance Model and Frequency Scan Analysis of 3.36MW Inverter	Mohammad Bani Shamseh (TMEIC)*; Ruben Inzunza (TMEIC); Masahiro Kinoshita (TMEIC); Tatsuaki Amboh (TMEIC)	827-832
235	Performance Analysis of a Residential Wind-Turbine Dual-Stator Winding Synchronous Reluctance Generator with Armature Reaction Effect	Thuso Karen Mulelu, MBIKA MUTEBA (University of Johannesburg)*	833-838
236	A Dynamic Inductive Power Transfer System	Mihai Cernat (Transilvania University of Brasov)*; Constantin M. Apostoaia (Purdue University Northwest Hammond, IN)	839-844
237	SHO designed fuzzy logic based controller for AGC study with capacitor energy storage	Subhadra Sahu (ITER, Siksha 'O' Anusandhan (Deemed to be University)); Nimai Charan Patel (Government College Of Engineering, Keonjhar,Odisha)*; Narendra Kumar Jena (ITER, Binod Kumar Sahu (Siksha 'O' Anusandhan University, Bhubaneswar, Odisha.); Subhransu Sekhar Dash (Government College of Engineering, Keonjhar); Ramazan Bayindir (Gazi University)	845-850
238	Novel application of Selfish Herd Optimisation based Two Degrees of Freedom cascaded controller for AGC study	Narendra Kumar Jena (ITER, Siksha 'O' Anusandhan (Deemed to be University)); Subhransu Sekhar Dash (Government College of Engineering, Keonjhar); Subhadra Sahu (ITER, Siksha 'O' Anusandhan (Deemed to be University)); Binod Kumar Sahu (Siksha 'O' Anusandhan University, Bhubaneswar, Odisha.); Nimai Charan Patel (Government College Of Engineering, Keonjhar,Odisha)*; KANUNGO B MOHANTY (NIT ROURKELA); Ramazan Bayindir (Gazi University)	851-856
239	Identification of common services in European flexibility demonstrators for laboratory-based interoperability validation	Amir Ahmadifar (RWTH Aachen); Jawad Haider Kazmi (AIT Austrian Institute of Technology)*	857-863
243	Development of Doubly-Fed Direct Drive Modular Permanent Magnet Wind Generator	Erkan Meşe (Ege University); Ali Bakbak (Ege University)*; Murat Ayaz (Kocaeli University); Mutlu Boztepe (Ege University); Mert Altıntaş (Ege University); Özkan AKIN (Ege University); Hüseyin Tayyer Canseven (Ege University)	864-868
244	Analyzing of Grid Connected Wind Power System	Erdal Bekiroglu (Bolu Abant Izzet Baysal University)*; Muhammed Duran Yazar (BAIBU)	869-873
245	Enhancing the Performance of Photovoltaic Systems under Partial Shading Conditions Using Cuttlefish Algorithm	Mariam A. Sameh, Mohamad A Badr (Future University in Egypt)*, Mostafa I. Marei, Mahmoud A. Attia	874-885

246	A Hybrid Deep Learning Model with Evolutionary Algorithm for Short-Term Load Forecasting	Abdullah Al Mamun (International Islamic University Chittagong); Muntasir Hoq (Bangladesh University of Engineering & Technology); Eklas Hossain (Oregon Tech); Ramazan Bayindir (Gazi University)*	886-891
247	Protection of Stand-Alone Wind Energy Conversion System using Bridge Type Fault Current Limiters	Arun Bhaskar Mayilvaganan (Velammal Engineering College)*; Dr.S.S DASH (GCE, Keonjhar odisha); Premalatha S (Velammal Engineering College); Arjun Parameswaran (Velammal Engineering College); Dinesh P (Velammal Engineering College)	892-897
248	Power Quality Enhancement with Wind Energy coupled UPQC using Adaptive Controller	Sunitha Devendran (velammal engineering college); Arun Bhaskar Mayilvaganan (Velammal Engineering College)*; Senthil Kumar V (Anna University); Dr.S.S DASH (GCE, Keonjhar odisha); Anjana S V (Velammal Engineering College)	898-903
249	A High Power High Frequency Transformer Design for Solid State Transformer Applications	Adel Nasiri (University of Wisconsin Milwaukee)*; Necmi Altin (UW-Milwaukee); Saban Ozdemir (UW-Milwaukee); Ahmad El Shafei (UW-Milwaukee)	904-909
253	DTC Control of the DFIG, Application to the Production of Electrical Energy	Harrouz Abdelkader (Department of Hydrocarbon and Renewable Energy, Laboratory (LEESI), University of Adrar, Algeria)*; Youcef Bakou (URERMS Adrar); Ilhami Colak (Nisantasi University); Korhan Kayisli (Nisantasi University); Mohamed Abid; Ibrahim Yaichi (University of Djillali Liabes, Sidi Bel Abbe 022000)	910-915
254	Variable Feedback Gain DC-DC Converter Tracing Output Voltage Fluctuation for Renewable Energy System	Yudai Furukawa (Fukuoka University)*; Hyuga Tomura (Nagasaki Institute of Applied Science); Tadashi Suetsugu (Fukuoka University); Fujio Kurokawa (Nagasaki Institute of Applied Science)	916-921
260	Performance Comparison of Different Machine Learning Algorithms on the Prediction of Wind Turbine Power Generation	Onder Eyecioglu (Nisantasi University)*; Batuhan Hangün (Nisantasi University); Korhan Kayisli (Nisantasi University); Mehmet Yesilbudak (Nevsehir Haci Bektas Veli University)	922-926
262	Effect of Calculated VOLL and EENS Parameters on Reserve Planning in Power System	Mehmet Rida TUR (Batman Üniversitesi TBMYO Department of Electrical and Energy)*; Ramazan Bayindir (Gazi University); Mohammed Wadi (İstanbul Sabahattin Zaim Üniversitesi); Abdulfetah Shobole (İstanbul Sabahattin Zaim Üniversitesi); Saloua Marhraoui (Department of Electrical Engineering, Mohammadia School of Engineers (EMI), Mohammed V University in Rabat)	927-932

263	Peak Current Detector of Switching Power Supply for Renewable Energy System: Immune Design to Inherent Delay in FPGA	Yudai Furukawa (Fukuoka University)*; Kazuya Uetsuhara (Nagasaki University); Yuichiro Shibata (Unknown); Tadashi Suetsugu (Fukuoka University); Shinichiro Hattori (ISAHAYA ELECTRONICS CORPORATION); Nobumasa Matsui (Nagasaki Institute of Applied Science); Fujio Kurokawa (Nagasaki Institute of Applied Science)	933-938
264	Forecasting of Daily Total Horizontal Solar Radiation Using Grey Wolf Optimizer and Multilayer Perceptron Algorithms	Medine Colak (Gazi University)*; Mehmet Yesilbudak (Nevsehir Haci Bektas Veli University); Ramazan Bayindir (Gazi University)	939-942
265	Design and Implementation of Sensorless DC Voltage Regulation for Shunt Active Power Filter Based Single Phase P-Q Theory	Ilhami Colak (Nisantasi University); Orhan KAPLAN (Gazi University)*	943-950
266	Classification of Turkey in Terms of Energy Efficiency, Total Renewable Energy and Greenhouse Gas Emission by Machine Learning	Murat BEKEN (Beykent Ünivesitesi)*; Batuhan Hangün (Nisantasi University); Onder Eyecioglu (Nisantasi University)	951-956
267	A Hybrid Overload Current Limiting and Short Circuit Protection Scheme: A Case Study on UPS Inverter	Cem Koseoglu (Inform); Necmi Altin (Gazi University)*; Fevzi Zengin (Inform); Hasan Kelebek (Inform); Ibrahim Sefa (GAZI UNIVERSITY)	957-962
268	Optimal Power Flow Using Artificial Bee Colony, Wind Driven Optimization and Gravitational Search Algorithms	Salih Ermiş (Ahi Evran Üniversitesi); Mehmet Yesilbudak (Nevsehir Haci Bektas Veli University); Ramazan Bayindir (Gazi University)*	963-967
269	SHA-512 based Wireless Authentication Scheme for Smart Battery Management Systems	Ahmad Hasan Abed Al Khas (Istanbul Şehir University)*; Ihsan Cicek (Istanbul Sehir University)	968-972
270	Two Degree of Freedom PID Controller For AC/DC Converters	Nihat Ozturk (Gazi University)*, Emre Celik (Düzce University)	973-976
271	Monthly Electrical Energy Consumption Modeling Using Ant Lion Optimizer	Mehmet Yesilbudak (Nevsehir Haci Bektas Veli University)*; Ozge Sagliyan (Istanbul Technical University); Ayse Colak (Cardiff University)	977-981
272	MPPT Based Model Predictive Control of Grid Connected Inverter for PV Systems	Naki GÜLER (Gazi University)*; Erdal Irmak (Gazi University)	982-986
274	The Contactless Permanent Magnet Energy Harvester using gyration from Roller Conveyor	Shotaro Motoyama (Tokyo Denki University)*; Atsushi Nakajima (Tokyo Denki University); Shigeo Masukawa (Tokyo Denki University)	987-990
275	Energy Management of a PV Energy System and a Plugged-in Electric Vehicle Based Micro-Grid Designed for Residential Applications	İpek Çetinbaş (Eskişehir Osmangazi University); Bunyamin Tamyurek (Gazi University); Mehmet Demirtas ("Faculty of Technology, Gazi University")*	991-996

276	Estimation of Energy Production by Using Probabilistic Programming Methods in Solar Power Plants: The case of Gazi Technopark	Mehmet Demirtas ("Faculty of Technology, Gazi University")*; Nuran Akkoyun (Graduate School of Natural and Applied Sciences Gazi University); Emrah Akkoyun (Department of Medical Informatics Middle East Technical University); İpek Çetinbaş (Eskişehir Osmangazi University)	997-1002
278	A study of the introduction of the photovoltaic generation system to conventional railway	Yoko Ishii (East Japan Railway Company)*, Hiroto Amata, Akifumi Yumoto, Kazumi Nagano, Mayumi Kanayasu, Yugo Yamada, Shiro Sekijima, Motohiko Onuki, Makoto Hashimoto, Koji Kasai	1003-1007
280	A Modified Droop Control Method for PV Systems in Island Mode DC Microgrid	Erdal Irmak (Gazi University)*; Naki GÜLER (Gazi University); Ersan Kabalci (Nevsehir University); Ayberk Calpbinici (Nevşehir Hacı Bektaş Veli University)	1008-1013
281	Optimal Combinations of Utility Level Renewable Generators for a Net Zero Energy Microgrid Considering Different Utility Charge Rates	Evan S. Jones (University of Kentucky)*; Huangjie Gong (University of Kentucky)	1014-1017
282	Smart Plug and Circuit Breaker Technologies for Residential Buildings in the US	Rosemary E. Alden (University of Kentucky)*; Peng Han (University of Kentucky); Dan M. Ionel (University of Kentucky	1018-1021
283	Overview of Big Data in Smart Grid	Abdulfetah Shobole (İstanbul Sabahattin Zaim Üniversitesi)*; Mbarak Hamid Ali, Mohammed Wadi, Mehmet Rida TUR	1022-1025
285	Overview of Flywheel Systems for Renewable Energy Storage with a Design Study for High-speed Axial-flux Permanent- magnet Machines	Murat G. Kesgin (University of Kentucky)*; Peng Han (University of Kentucky); Narges Taran (University of Kentucky); Dan M. Ionel (University of Kentucky)	1026-1031
286	Artificial Neural Network Based Automatic Voltage Regulator for a Stand-Alone Synchronous Generator	Güngör BAL (Gazi University)*; Orhan KAPLAN (Gazi University); Süleyman Samet Yalçın (Gazi University)	1032-1037
287	Design Comparison of Peak Current Mode Switching Power Converter for DC Distribution Systems	Kazuhiro Kajiwara (Nagasaki Institute of Applied Science); Yasuyuki Koga (Nagasaki Institute of Applied Science)*; Shinichiro Hattori (ISAHAYA ELECTRONICS CORPORATION); Nobumasa Matsui (Nagasaki Institute of Applied Science); Fujio Kurokawa (Nagasaki Institute of Applied Science)	1038-1041
288	Performance Mechanism of Active Clamp Resonant SEPIC Converter in Renewable Energy Systems	Kazuhiro Kajiwara (Nagasaki Institute of Applied Science); Kazuki Tsuji (Nagasaki Institute of Applied Science)*; Satoshi Ikeda (Panasonic); Nobumasa Matsui (Nagasaki Institute of Applied Science); Fujio Kurokawa (Nagasaki Institute of Applied Science)	1042-1046
289	Optimization of PID Parameters Using Ant Colony Algorithm for Position Control of DC Motor	Enes Can Şimşek (Gazi University); Ali KOSE (Gazi University); Murat Şahin (Roketsan); Erdal Irmak (Gazi University)*	1047-1051

	Harmonic reduction in CHB 13-level	Rosario Miceli (University of Palermo)*, C.	
290	inverters by PAM fundamental-frequency	Cecati, M.G. Cimoroni, R. Miceli, G.	1052-1056
	strategy	Schettino, V. Castiglia and F. Pellitteri	
291	Sensorless Speed Control for Double-Sided	Massimo Caruso (University of Palermo)*, A.	
	Linear Induction Motor Applications	O. Di Tommaso*, R. Miceli*, Member IEEE,	1057-1062
		R. Rocha** and F. Viola*	
292	A Bidirectional IPT system for Electrical	Rosario Miceli (University of Palermo)*, V.	1063-1068
292	Bicycle Contactless Energy Transfer	Castiglia, R. Miceli, F. Pellitteri	1003-1008
	Comparative analysis of modified	Giuseppe Schettino (University of Palermo)*;	
293	modulation scheme for three-phase voltage	Rosario Miceli (University of Palermo);	1069-1073
	fed QZS inverters	Fabio Viola (Università di Palermo)	