2024 11th Iranian Conference on Renewable Energy and Distribution Generation (ICREDG 2024)

Yazd, Iran
6-7 March 2024

IEEE Catalog Number: CFP2406S-POD
ISBN: 979-8-3503-6133-9

Copyright © 2024 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:	CFP2406S-POD
ISBN (Print-On-Demand):	979-8-3503-6133-9
ISBN (Online):	979-8-3503-6132-2
ISSN:	2325-9272

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

TABLE OF CONTENTS

A Modified Quadratic Boost Converter with Continuous Input Current for PV Applications 1
Hamed Arvani, Ali Sajjadi, Ebrahim Afjei, Mohsen Hamzeh

A New Topology for High Gain DC DC Converter Using Coupled Inductor 6
Amir Ramezani Roshnavand, Ebrahim Afjei

A Novel Single-Switch High Step-Up DC-DC Converter Based on Quadratic Boost for Renewable Energy Applications 11
Nazilasadat Talebi, Mohammadreza Adib, Salar Sadeghian, Reza Beiranvand

A Novel Single-Switch Self-balanced Bipolar Step-Up DC–DC Converter Topology 18
Daniyal Ahmadipour, Hadi Goudarzhagh, Sadegh Esfandiari, Amir Khorsandi

A Novel Tri-State High Step-Up DC-DC Converter with Coupled Inductor 24
Amir Ramezani Roshnavand, Mohammad Kalamialhashem, Ebrahim Afjei

A Quadratic Based High Voltage Gain Converter Using Coupled Inductors and Switched Capacitor..... 30
Maryam Hajilou, Mohammad Maghsoudi, Hosein Farzanehfard

A Review on Machine Learning Model Implementation for Photovoltaic Systems..... 36
Ali Akbar Yaghoubi, Mahdi Gandomzadeh, Alireza Parsay, Aslan Gholami, Roghayeh Gavagsaz-Ghoachani, Majid Zandi

An Interleaved Bidirectional Switched-Capacitor Converter with Reduced Stress on the Capacitors..... 41
Ali. S. Tabarestani, S. Hamid Fathi, Gevork B. Gharehpetian

An Interleaved Boost Converter for Connecting Distributed Generation Sources to Bipolar DC Microgrids 48
Sobhan Heidarbozorg, S. Hamid Fathi, Hadi Goudarzhagh, Sina Ahmadzadeh Mohammadi

An Optimized Bidirectional Long Short-Term Memory Network for Net Load Forecasting 55
Sina Hossein Beigi Fard, Amir Hossein Baharvand, Meysam Doostizadeh, Amir Hossein Poursaeed, Mahmoud Reza Shakarami

Analyzing Consumer Behavior Insights from Smart Meter Data: A Comparative Study of Deep Learning and Traditional Machine Learning Approaches 61
S. Mojtaba Matinkhah, Mahdi Rahravi

Analyzing Electrical Centrality Metrics for Optimal Placement of Microgrids and Renewable Sources 66
Mohammad Shahraeini, Panayiotis Kotzanikolaou

Analyzing the Impact of External Interventions on Water and Energy Demand: Cybersecurity's Role in Sustainable Development..... 74
Daryoush Tavangar Rizi, Mohammad Hassan Nazari, Ali Maleki, Seyed Hossein Hosseinian, Maryam Fani, G. B. Gharehpetian

Bidirectional LLC-DAB Converter for Battery Charger Applications: Analysis and Design 79
Salar Sadeghian, Mohammadreza Adib, Nazilasadat Talebi, Adib Abrishamifar

Comparative Analysis of Microgrid Configurations for Sustainable Energy Supply in Kish Island..... 85
Amin Borhani, Mohammad Nazififard

Cost-Benefit Analysis of PV Self-Consumption in Residential Sector in Italy 91
Saeed Khorrami, Maryam Khazaee, Juan Manuel Roldán-Fernández, Luigi Martirano

Curtailment Reduction of Renewable Generations Through Power-To-Hydrogen Opportunities 99
Masoud Khatibi

Electric Spring to Power Factor Correction and Voltage Regulation of PV System by Considering Uncertainties..... 105
Hamed Ahmadi, Abdolmajid Dejamkhooy, Ebrahim Alipour, Majid Hosseinpour

Electrical Load Consumption and Photovoltaic Power Forecasting Using Deep CNN 113
Fariba Dehghan

Flexibility Assessment of Virtual Power Plant with Considering Dispatchable Wind Turbine 118
Mahdi Rahimi, Fatemeh Jahanbani Ardakani, Ali Reza Rahimi

Flexible Microgrid Scheduling with the Presence of Renewable Energy Resources 124
Mahdi Rahimi, Fatemeh Jahanbani Ardakani, Ali Reza Rahimi

High Step-Up Quadratic Converter with ZVS Operation and Continuous Input Current 130
Mohammad Alaei Faradonbeh, Mohammad Maghsoudi, Hosein Farzanehfard

Improvement of DC Power Response Using Artificial Neural Network in an Off-Grid PV System Linked to a Constant Power Load 136
Mohammad Hossein Shaabani, Navid Dehghan, Mohammad Hossein Nemati, Behrooz Vahidi

Increasing Social Contribution in Urban Energy Projects Using Process Improvement Methodologies..... 142
Mahboobeh Jelokhani Niaraki

Integrating Photovoltaic Systems into Urban Infrastructure: a Case Study of Tehran International Tower..... 151
Shahrzad Zeynali, Mohammad Nazififard

Investigating Role of Renewable Resources Including Wind Turbines in Energy Hub by Considering Simultaneous Demand for Electricity, Heating and Cooling 157
Daryoush Tavangar Rizi, Mohammad Hassan Nazari, Ali Maleki, Seyed Hossein Hosseinian, Maryam Fani, Gevork B. Gharehpetian

Microgrid Bidding Strategy with Uncertain Renewable Sources and Interruptible Loads in Energy and Spinning Reserve Markets..... 162
Hossein Shahinzadeh

Microgrids: Characteristics and Emerging Challenges..... 169
Morteza Hesami, Mirhamed Pourmirasghariyan, G. B. Gharehpetian

Modeling and Controller Design for a GaN-Based AC-DC LED Driver 177
Amirhossein Ramezankhani, Mohammadreza Arabshahi, Davood Arab Khaburi, Jose Rodriguez

MPSO-Based Economic Optimal Design of an Isolated Industrial Microgrid Considering LPSP Concept and Covering System Uncertainties 183
Mahdi Najafi, Peyman Sadat, Mahdi Faraji, Gevork B. Gharehpetian, Amir Khorsandi, Seyed Hossein Hosseinian

Numerical Analysis of Number of Blocks on PEM Fuel-Cell Efficiency 192
Amirhossein Mansouri, Mohammadreza Baniardalani, Maysam Saidi

Optimal Coordination of Directional Overcurrent Relays for Fuse Saving in Distribution Networks with Distributed Generation 196
Ali Mohammadi Sarableh, Ali Maleki, Amir Khorsandi, Seyed Hossein Hosseinian

Optimal Design of an Off-Grid Multi-energy Microgrid Based on Corona Virus Search Optimizer 201
Iraj Faraji Davoudkhani, Hossein Shayeghi, Javad Nabatalizadeh

Optimal Fuzzy-Based Controller for DVR to Improve Power Quality Considering Various Fault Types 208
Ebrahim Alipour, Seyedjalal Seyedshenava

Optimal Resilient Operation of Multi-Carrier Energy Systems 216
Seyed Hadi Shahcheraghi, Mehrdad Setayesh Nazar

Optimizing Microgrid Energy Management: Metaheuristic Versus Conventional Techniques 222
Amir Meydani, Hossein Shahinzadeh, Hamed Nafisi, Gevork B. Gharehpetian

Optimizing Renewable Microgrids for Green Hydrogen in Industrial Settings: a Case Study in the Steel Industry 237
Mohammad Ghorbani, Mohammad Nazififard

Peer-To-peer Energy Transaction Incorporating Prosumers' Tendency with Load and PV Uncertainty Consideration 243
Mohammad Bagher Moradi, Mohammad Hassan Nazari, Gevork B. Gharehpetian, Seyed Hossein Hosseinian, Hamed Nafisi

Perylene Diimide Molecules as Acceptor Materials in Organic Solar Cells 250
Hosein Ahangar, Mostafa Moslempoor, Esmaeil Sheibani

Pitch Angle Control in Wind Turbines Using a Robust MRAC and Σ Correction 257
Mehrnoosh Kamarzarrin, Mohammad Hossein Refan, Adel Dameshghi

Quadratic High Step-Up DC-DC Converter with Passive Clamp Circuit 263
Meysam Rezayat, Behzad Mirzaeian Dehkordi, Mehdi Niroomand

Regional Wind Power Forecasting Based on CNNBiLSTM-ReliefF Method 271
Fariba Dehghan, Mohsen Parsa Moghaddam, Maryam Imani

Reliability and Lifetime Analysis of a Standalone PV System Employing Fuzzy Logic and P&O MPPT Methods Under Faulty Conditions 276
Navid Dehghan, Ali Amini, Mohammad Hossein Shaabani, Behrooz Vahidi

Rooftop Photovoltaics Hosting Capacity Enhancement of Urban Distribution Networks Using Water Storage in Tall Buildings 283
Paria Emami, Hamed Delkhosh, Mohsen Parsa Moghaddam

Self-Assembled Monolayer-based Hole Transporting Materials for Invert Perovskite Solar Cells 289
Fatemeh Arami Ghahfarokhi, Mostafa Moslempoor, Hosein Ahangar, Esmaeil Sheibani

Simulation of Wind Flow Effect on the Cooling of Solar Panels (in Tehran) 295
Seyed Ali Alenabi, Amirhossein Mansouri, Aslan Gholami, Roghayeh Gavagsaz-Ghoachani

Sliding Mode Current Control of Asymmetrical Six-Phase Induction Machine-based Integrated Onboard Charger in EVs 299
Ali Kaffash, Mohammad Saeed Mahdavi

The Impact of Energy Storage System on the Flexible Operation of the Renewable-Based Virtual Power Plant..... 305
Alireza Zare, Mohammad Agha Shafiyi

Triphenylamine and Carbazol as Hole Transport Materials in Solid-State Dye-Sensitized Solar Cells..... 312
Mostafa Moslempoor, Hosein Ahangar, Fatemeh Arami Ghahfarokhi, Esmaeil Sheibani

Unveiling Mountaineering Team-Based Optimization Algorithm forPerformance Enhancement of Radial Distribution 319
Peyman Zare, Seyed Jalal Seyed Shenava, Hossein Shayeghi, Iraj Faraji Davoudkhani, Amir Mohammadian

Author Index