14th International Conference on Clean and Green Energy (ICCGE 2025)

IET Conference Publications 938

Shanghai, China
18 - 20 July 2025

ISBN: 979-8-3313-2962-4

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2025) by the Institution of Engineering and Technology
All rights reserved.

Printed with permission by Curran Associates, Inc. (2026)

For permission requests, please contact the Institution of Engineering and Technology
at the address below.

Institution of Engineering and Technology
Futures Place, Kings Way
Stevenage, Hertfordshire
U.K. SG1 2UA
United Kingdom

Phone: +44 (0)1438 313311

www.theiet.org

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
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

A Sensorless Model Predictive Control Framework for Wave Energy Converters Utilizing Extended Kalman Filter-Based Excitation Force Estimation 1
Tongzhou Liu, Lixun Zhu, Xinglong Jin, Zhixin Huang, Bo Li, Xin Jin

Toward Net-Zero Interconnected Microgrids: Coordinated Use of Mobile Battery Energy Storage to Balance Surplus Energy and Carbon Emissions 7
Mohammadreza Gholami, Yao Gao, Guo Chen, S M Muyyen

Photovoltaic Power Forecasting Algorithm Based on LSTM-KAN Hybrid Architecture 17
Z. Lingfei, C. Yangyang, Z. Zhanwen, C. Bohang, Z. Mingyu

Design and Implementation of Smart Gardens for Bio-Photovoltaic Energy Generation as a Sustainable Alternative in Pucapuquio - Peru 24
Andrea A Rosales, Patricia I Vilcahuaman, Gladys E Villcas, Helen M Ramírez, Catherine Cristobal

The Two-Layer Optimization Model of Virtual Power Plants Based on the Electric Energy - Peak Shaving Market 29
Pang Qihua, Wan Yifei, Xie Tian

A Decentralized Unknown Input Observer-Based False Data Injection Detection Framework for DC Microgrids 34
Anik Ghosh, Sajal K. Das, Yao Gao, Guo Chen, S. M Muyeen

Decentralised Energy Management Using Blockchain in Virtual Power Plants with Batteries to Reduce Network Congestion 39
Nabin B. Ojha, Liaqat Ali, Ehsan Pashajavid, Arindam Ghosh, S. M. Muyeen

Review for Survey Technologies Peer to Peer Energy Trading Participants Willingness in Communities 45
Yan Gao, Xuewen Zhao

Research on Multi-Level Loop Connection System of Auxiliary Power System in Large Power Plants 53
Yu peng, Peng Yun, Yu dan, Zhou Dongmei, Yang Kang

Integrated Development of Rail Transit and New Energy 61
Miaosheng Xu

Optimization Design of Core Flow Distribution for 45MW Solid Fuel Molten Salt Reactor 67
Qiaohui Su, Ye Dai, Fangyuan Zhang, Yang Zou

Integrated Small Modular Molten Salt Reactors and Pre-Compression Supercritical Carbon Dioxide Brayton Cycle for Ship Propulsion: Preliminary System Performance Analysis and Optimization 75
Guobin Jia, Yang Zou, Ye Dai, Jian Tian, Heng Lu, Xiaofeng Yuan, Chong Zhou

Effect of Power Output Difference on Natural Convection in Heat Pipe micro-MSR 85
Jiangyu Zhou, Xingwei Chen, Ye Dai

Numerical Investigation of Flow Maldistribution in Inlet Header of Printed Circuit Heat Exchanger 92
Yuwen Hua, Yushuang Chen, Xiaohong Yang

Optimization of Zigzag Printed Circuit Heat Exchanger Structure for Particle Deposition Based on Deposition Model 99
Ying Xu, Yu-Shuang Chen, Xiao-Hong Yang, Yang Zou

Accelerator-Driven Systems for Nuclear Waste Transmutation: Global Technological Progress with Focus on CIADS Project 105
Wang Sicheng, Hu Zhengguo, Li Dapeng, Liu Qian, Liu Lu

Research on Measurement Method for the Core Flow Distribution Experiment in Molten Salt Reactors Based on Conductivity Fluid Tracking Technology 113
Maoying Xu, Jian Tian, Yu shuang Chen, Chong Zhou, Yang Zou

Three-Dimensional Full-Domain Steady-State Temperature Field Simulation Analysis of Pedal Motor for New Energy Vehicles 122
Chengcheng Zeng, Quanfeng Li

A Research on E-NVH Performance Comprehensive Optimization of IPMSM for EV Based on NSGA-‡V 128
Sili Ma, Quanfeng Li

A Magnetic Equivalent Circuit Model of Consequent-Pole Magnetic Screw Based on 2-D Reluctance Network 134
Shuangyu Chen, Lixun Zhu, Xinglong Jin, Zhixin Huang, Bo li, Xin Jin

Optimization of Vibro-Acoustic by Tooth Harmonics of IPMSM for EV Under Multiple Operating Conditions 139
Sili Ma, Quanfeng Li

Usage of Alternate Stator Material Instead of Energy-Intensive Materials in 3-Phase Induction Motors Used in Industrial Conveyors Using ANSYS Maxwell 145
Zubair Hussain Hamid, Paul Borde-Sevilla, Xiaoliang Feng, Quanfeng Li

Modeling and Semi-Physical Simulation Validation for the Hydrogen Supply System in Proton Exchange Membrane Fuel Cell 153
Xiaosong Song, Zhe Dong, Weiye Sun, Ningyong Liu, Yi Zhang

Research on Visualization Design of AIGC Empowering Ecological Environment System Management and Green Sustainable Development 159
Li Yuan Cheng

Key Technologies for Low-Carbon Production Towards Sustainable Development 169
Qun Sun, Guowei Li, Yong Yang

Bearing Fault Diagnosis Method Based on Multi-Branch Convolutional Neural Network 173
Yang Wang, Yulun Gao

Bearing Fault Diagnosis Based on CNN-MGO-LSSVM 177
Yiming Xue, Chuanbo Wen

Cross-Domain Fault Diagnosis for Bearings Via Multi-Branch Convolutional Neural Network and Mixed Discrepancy Measurement 183
Meng Luo, Quanfeng Li, Wei Cui

Rolling Bearing Fault Diagnosis Based on Multi-Scale Attention and Improved Joint Distribution Adaptation Network 188
Meng Luo, Quanfeng Li, Wei Cui

Author Index