

2025 4th International Conference on Mechanical Engineering and Power Engineering (MEPE 2025)

**Wuhan, China
19-21 December 2025**

IEEE Catalog Number:
ISBN:

CFP25CN8-POD
979-8-3315-8853-3



Copyright © 2025, IEEE

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:	CFP25CN8-POD
ISBN (Print-On-Demand):	979-8-3315-8853-3
ISBN (Online):	979-8-3315-8852-6

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

Development of a Self-Constructing Deep Neural Network Controller: A Case Study on Position Tracking Control of a Stepper Motor under Noisy Conditions	1
<i>Siavash Kazemi, Lutz Gröll</i>	
Multi Physics Thermal Simulation and Passage Optimization of a Permanent Magnet Synchronous Motor	7
<i>Yongzhe Liu, Cheng Liu, Xiaoyu Xie</i>	
A Two-stage Hierarchical Optimal Operation Considering Multiple Uncertainties	14
<i>Xin Rong, Jinyang Du, Mingjun Wang, Ruijin Qu, Yuan Tang, Bensong Zhang, Yunzhi Teng</i>	
An EKF-based Algorithm for Rapid Extraction of the Fundamental Components of Fault Signals in Power Distribution Networks	19
<i>Yang Diao, Ronghai Zhang, Yao Chen, Yifei Chen</i>	
Stability Assessment for Paralleled Grid-Forming Converters Based on Virtual Impedance with Wide Range of Connection Impedance	24
<i>Kai Sun, Pande Jiao, Chunyan Wu, Ran Li, Kai Yuan, Dayong Zhou</i>	
Modeling and Simulation of Cable Joints Considering Contact Resistance	31
<i>Yaoxuan Ruan, Ziyu Liu, Hongfei Zhao, Maocun Deng, Chunyong Zhang, Hao Zhang, Mao Li, Jiasheng Huang, Zhuozhan Han, Hongbo Guan, Xiaobin Mei, Gang Liu</i>	
An Adaptive Weighted Load Forecasting Approach Based on Wavelet Transform-BP Neural Network Model	36
<i>Kaihong Zheng, Jinyang Du, Yuchen Fang, Xin Rong, Yuan Tang, Bensong Zhang</i>	
Research on Key Technologies for Source Load Cooperative Optimal Design of Distributed Photovoltaic Systems in Coal Mining Enterprise	41
<i>Xiaodong Li, Yanfang Ren, Shiqi Wang, Xinyue Liu, Yanhong Ren, Hongbo Gao</i>	
Regulation Capability Assessment and Enhancement for Coordinated Renewable Energy and Storage Systems	46
<i>Zhang Jiangfeng, Lu Min, Wang Tianyu, Lei Lingyao, Qi Xiao</i>	
Electrical Design and Optimization of an Integrated Solar, Storage, and EV Charging Station for Campus Applications	52
<i>Xiaodong Li, Yanfang Ren, Xinyue Liu, Shiqi Wang, Xin Yuan, Hongbo Gao</i>	
Frequency Selectivity Analysis for the Double LCL Wireless Power Transfer System	57
<i>Disheng Cui, Yongli Zhu</i>	
Design and Validation of an Automated VenturiBased Foam Fire Suppression System for Oil Storage Tanks	62
<i>Abdulrahman Alamri, Khalid Alruwali, Saud Alqahtani, Omar Alzahrani, Mushtaq Khan, Faramarz Djavanroodi</i>	
Design and Test of a Deployable Robot Based on SLPM	67
<i>Yukai Xiao, Xisheng Zhang, Yujia Pang, Yuechun Wang, Jialin Li, Chenxi Jia, Zheming Zhuang, Jian S. Dai</i>	

Enhanced Take-off and Landing Performance of Light Aircraft and Large UAVs with Variable-Incidence Wings	72
<i>Nikolai N. Kokin, Sergey V. Karamov</i>	
Design and Experimental Research on Retrofitting a Green Low-Carbon Ship Power System	79
<i>Jianfeng Gao</i>	
Optimization Analysis of Interference Fit for Internal and external Gear Sleeves in Variable Gauge Wheelsets	85
<i>Chen Yand, Chen Yonghong</i>	
Dynamic Analysis of Cage in Double Row Angular Contact Ball Bearings	92
<i>Xin'Gang Yang, Kai Wang, Runtian Du, Hongqiang Yao, Hongyan Liu, Gangyi Hu</i>	
An Adjustable quasi-zero Stiffness Vibration Isolator Based on Euler Beam Buckling	97
<i>Huayan Pu, Jiale Zhang, Wei Peng, Linbo Liao, Min Wang</i>	
Hot-Spot Stress Evaluation of Transformer Tank Welded Joints Using Finite Element Analysis	103
<i>Kerim Kaplan, Emre Yeniyl</i>	