

2026 2nd International Conference on Smart Energy and Control Engineering (SECE 2026)

**Wenzhou, China
10-12 April 2026**

IEEE Catalog Number:
ISBN:

CFP261AD-POD
979-8-3315-7858-9



Copyright © 2026, 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:	CFP261AD-POD
ISBN (Print-On-Demand):	979-8-3315-7858-9
ISBN (Online):	979-8-3315-7857-2

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

Modeling and Analysis of Primary Frequency Regulation in Thermal Units Considering Inter-Temporal Coupling Mechanisms	1
<i>Pengfei Qi, Huan Ma, Qun Chen, Xiaotong Zhang, Yangyang Ge</i>	
Modeling and Empirical Analysis of Multi-Dimensional Synergistic Benefits of Source-Grid-Load-Storage Integrated System	6
<i>Hailong Zhang, Guoshan Yang, Zhengxiong Ma, Qingmin Zhang, Linxiang Zhao</i>	
Time-Varying Wind Farm Yaw Predictive Control Based on Reinforcement Learning	10
<i>Jiayang Chen, Minxia Liu, Xin Liu, Qinkai Cao, Jingjia Yu, Chengzhong Pan</i>	
Synthetic Inertia Support from Variable-Speed Wind Turbines: Comparative Study	14
<i>Mohamad Hamoud</i>	
A Study on AC V2G EV-Pile Communication	19
<i>Xinglong Ling, Fan Wu, Kaixuan Li, Sicheng Duan, Xiangliang Fang, Yulu Zhong</i>	
A Method for Coordinated Planning of Generation, Transmission, Load, and Storage in Industrial Park Distribution Networks with High Proportion of Distributed Resources	24
<i>Yong Zhang, Qichen He, Liangliang Zhong, Chongxi Xu, Hailong Li, Xiaodong Ying, Xiaodong Ye</i>	
Risk Analysis of Substation DC Bias Under the Influence of Multiple HVDC Projects	28
<i>Jianfeng Chen, Bochao Yang, Chaoyu Jia, Fengrun Wang, Jianjun Yang, Hailiang Lu</i>	
Bifurcation Comparison Analysis of Grid-Following Rectifiers and Inverters Based on Reduced-Order Models	33
<i>Xianye Guo, Guanzhong Wang, Ying Yang, Lebing Zhao, Longfei Wang</i>	
Study of an Enhanced Algorithm for Transmission Line Foreign Object Detection Addressing Complex Background Interference	38
<i>Xia Wang, Zhinan Wang, Wei Jiang, Sheng Huang, Yulong Li, Qingxue Liu, Xunlan Yang, Zhe Zhang</i>	
Research on Security and Stability Issues of Extremely Weak Sending-End Power Grid Under Access of Multi-Terminal UHV Flexible DC	42
<i>Wenman Gao, Shaoxuan Zhu, Xiangyi Chen, Meng Chen</i>	
RL-PECS: Reinforcement Learning-Based PV-ESS Coordinated Scheduling for Line Loss Reduction and Voltage Regulation in Distribution Networks	48
<i>Xiaoru Gong, Debao Wang, Xinyao Niu, Xingong Cheng</i>	
Research on the Operation and Maintenance Decision Support System for Power Transmission Tower Foundations Based on State Perception	52
<i>Yang Zhang, Yu Zhang, Haichao Peng, Qi Xu, Yuhang Liu</i>	
Variable-Speed Pumped Storage Power Control Strategy Based on BP Algorithm	58
<i>Yuting Lu, Sipeng Hao</i>	
The Topological Design and Modal Analysis of a Hybrid Transformer Embedded in a Two-Stage Bidirectional AC/DC Converter	63
<i>Hua Yang, Chong Liu, Lu Wang, Qiang Li, Jian Chen</i>	

A Measurement-Driven Optimization Model and IoT-Based Supervision System for Substation Infrastructure Reliability	68
<i>Xin Lin, Hao Cui, Boxin Huang, Shengduo Chen</i>	
Frequency Regulation Strategy and Economic Analysis of Thermal-Storage Coordination for Power Systems with Variable Inertia	73
<i>Yurui Li, Sipeng Hao, Yijiang Feng, Yue Yuan</i>	
Three-Phase Interleaved Bidirectional LLC Resonant Converter for High-Efficiency PV-Battery Energy Storage Systems	77
<i>Mora Castillo Luis Medardo, Zhenyang Hao</i>	
Load Transfer Optimization Method Based on Neural Networks Under Substation Total Outage Faults	82
<i>Yutong Guo, Shufan Shi, Cong Wang, Xiangyu Gao</i>	
Adaptive Intelligent Protection Model for Distribution Network based on State Prediction	86
<i>Yue Yuan, Sipeng Hao</i>	
Switchgear Temperature Anomaly Early Warning Method on Multi-Source Sensing and Improved Clustering	90
<i>Shichang Chen, Leiming Song, Weidong Xu, Bojiang Liu, Zifeng Yuan, Geng Chen, Yanbo Hao Shuyu Liang</i>	
Coupling of Environment and Equipment and Lowcost Governance of Long-cycle External Cold Heat Exchange Equipment at High Altitude	95
<i>Yang Li, Hongzheng Xu, Xinming Zheng, Songfeng Tian, Liuyang Lu, Yazhou Lei, Yingying Lyu</i>	
Non-Singular Terminal Sliding Mode Control of Permanent Magnet Synchronous Motor Based on Linear Extended State Observer	100
<i>Zeyu Yang, Panpan Xun, Yuanzhen Li, Pu Cheng, Haohui Yang</i>	
Lithium Battery Fault Detection Method Based on Feature Extraction Images	105
<i>Zekai Zhao, Wenjie Zhang, Zhihao Zhang, Nianfu Li, Chentao Wang, Mifeng Ren</i>	
Tool Path Smoothing Algorithm for Five-Axis CNC Machining Based on SQP Optimization	109
<i>Jinyong Li, Cong Geng, Jiayi Fu</i>	
Multi-Objective System Optimization of an R134a/DMF Absorption Refrigerator Based on an Artificial Neural Network Algorithm and Particle Swarm Optimization	115
<i>Zhao Chen, Zaidi Mohd Ripin, Bingxu Shi</i>	
Finite Element Simulation of Surge Mechanical Response for Offshore Floating Photovoltaic Modules	122
<i>Bo Zhou, Qiang Li, Fuyang Liu, Zirong Cao</i>	
Thermodynamic and Economic Assessment of Waste Heat Recovery Integration in Combined Heat and Power Systems	126
<i>Md Shawkat Ali, Jay Wang</i>	
Research on Multi-objective Optimal Scheduling of Building Energy Systems Based on an Improved PSO Algorithm	130
<i>Chen Chen, Xiaogui Huang</i>	
Research on PLC Control of Circular Conveying System Based on Static Path Predefinition and Dynamic Path Reservation	134
<i>Junge Guo</i>	

Hierarchical MPC with Improved Inter-Layer Coordination for Autonomous Vehicle Path Tracking	139
<i>Dan Li, Yongfeng Shen, Yansai Wei, Huawei Wan</i>	
Research on Fault-Tolerant Control of Lateral Stability Under the Failure of Distributed Drive Electric Vehicle Drive Motor	145
<i>Chunhui Liu</i>	
Boiler-Side Energy Performance Evaluation and Load Optimization for a Thermal Power Plant Based on Ant Colony Optimization	149
<i>Shuixing Zhu, Xian Hong, Zhonghao Guan, Kaiqing Fan, Xuechao Shi</i>	
Research on Lithium-Ion Battery Capacity Prediction Based on a Fusion Architecture of Adaptive Empirical Wavelet Transform and Transformer	155
<i>Chenglin Li, Xiaoxia Han, Wenjie Zhang</i>	
Research on Active Steering and Coordinated Control of Distributed Direct-Drive Systems	159
<i>Baoyu Shan, Pengqi Hou, Ce Wang, Hongyang Gao</i>	
Research on Communication Control Method for ADAS Test Platform for Multi-Objective Cooperative Control	164
<i>Yu Jiang, Guangyu Xiao, Wei Wang, Bin Liu, Fangjian Chen</i>	
Research on Distributed Hardware-in-the-Loop Testing System for Unmanned Mining Trucks	169
<i>Jingze Liu, Jun Li</i>	
Design and Optimization of a High-Pressure Flare Gas Recovery System in Deepwater Gas Fields Based on Cascade PID Control	173
<i>Xu Sun, Han Shi, Yong Lai, Yong Yang, Fuming Xiang</i>	
Collision Risk Sliding Mode Control for Dual-Layer Heterogeneous Multi-Agent Systems with Mismatched Uncertainties	179
<i>Kehong Liu, Jiening Wu</i>	
Precision Docking Adaptive Clamp Claw Design Based on Edge Calculation	184
<i>Boming Li, Wangzhun Chu, Helong Li, Sheng Hua, Guangze Zhu, Gong Chen, Jie Huang, Shunming Teng</i>	
High-Performance Temperature Control System for Silkworm Egg Acid Treatment Based on Active Disturbance Rejection Control	188
<i>Linghong Zeng, Jianhuan Su</i>	
Wireless Charging System for UAV Based on High Offset Tolerance Based on Horizontal Flux Complementarity	194
<i>Jihua Guo, Guangyao Li, Chunbo Zhu</i>	
3D UAV Path Planning and Sensitivity Analysis Based on Artificial Life Algorithm	199
<i>Luda Zhen</i>	
Multi-Parameter Fusion Evaluation and Dynamic Binning Scheduling for Energy Storage Systems	203
<i>Chenrui Tang, Sipeng Hao, Yurui Li, Yue Yuan</i>	
A Novel Hierarchical Topology and Rapid Equalization Strategy for Liquid Metal Batteries	207
<i>Peng Peng, Yunze Liu, Xuan Gong, Wanzhou Sun, Haomiao Li, Kangli Wang</i>	