

2021 International Conference on Advanced Technology of Electrical Engineering and Energy (ATEEE 2021)

**Qingdao, China
24 – 26 December 2021**



**IEEE Catalog Number: CFP21BH7-POD
ISBN: 978-1-6654-2084-6**

**Copyright © 2021 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:	CFP21BH7-POD
ISBN (Print-On-Demand):	978-1-6654-2084-6
ISBN (Online):	978-1-6654-2083-9

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

CURRAN ASSOCIATES INC.
proceedings
.com

2021 International Conference on Advanced Technology of Electrical Engineering and Energy (ATEEE) **ATEEE 2021**

Table of Contents

Preface	viii
Organizing Committee	ix
Technical Committee (Reviewers)	x
Sponsor	xi

Session 1: Electrical Engineering and Control

CAN Communication Bottom Driver Development of Vehicle Controller	1
<i>Xingpeng Sun (Wuhan University of Technology, China), Chun Xiao (Foshan Xianhu Laboratory of the Advanced Energy Science and Technology Guangdong Laboratory, China), Jing Chen (Foshan Xianhu Laboratory of the Advanced Energy Science and Technology Guangdong Laboratory, China), and Bingyin Zhou (Wuhan University of Technology, China)</i>	
Development of SPI Driver for Vehicle Controller	6
<i>Bingyin Zhou (Wuhan University of Technology, China), Chun Xiao (Foshan Xianhu Laboratory of the Advanced Energy Science and Technology Guangdong Laboratory, China), Jing Chen (Foshan Xianhu Laboratory of the Advanced Energy Science and Technology Guangdong Laboratory, China), and Xingpeng Sun (Wuhan University of Technology, China)</i>	
Time Constant Estimation of RC Blocks—An Iterative Method	10
<i>Kunquan Peng (Shanghai Jiao Tong University, China), Limin Hao (Shanghai Jiao Tong University, China), Yaoyao Ye (Shanghai Jiao Tong University, China), and Guoyong Shi (Shanghai Jiao Tong University, China)</i>	
Auto-Sizing of Multi-Stage Complementary Metal Oxide Semiconductor Operational Amplifiers by Deep Q-Network and Particle Swarm Optimization	15
<i>Shuai Ren (Shanghai Jiao Tong University, China), Guoyong Shi (Shanghai Jiao Tong University, China), and Yaoyao Ye (Shanghai Jiao Tong University, China)</i>	
Optimal Placement of FACTS using Contingency Analysis in PowerWorld Simulator	21
<i>Muhammad Ehsan (COMSATS University, Islamabad) and Rabiah Badar (COMSATS University, Islamabad)</i>	

Design and Implementation of Expert Decision Information System for Intelligent Operation and Maintenance of Traction Power Supply Based on GIS Technology	26
<i>Xiaojing Zhou (China Railway Administration Nanchang Group Co., Ltd, China), Wu Tan (China Railway Nanning Group Co., Ltd., China), Shudan Yu (Nanchang Institute of Technology, China), Fensheng Kong (The Third Construction Co., Ltd of China CREC Railway Electrification Engineering Group, China), and Qingtang Li (China CREC Railway Wuhan Electrification Bureau Group, China)</i>	
Sliding Model Control of Servo Turntable Based on New Approaching Law	31
<i>Qilin Li (Xihua University, China), Jun Wang (Xihua University, China), Ziyuan Feng (Xihua University, China), and Zhang Sun (Xihua University, China)</i>	
Analysis and Experiment of Electromagnetic Induction on the Overhead Ground Wires of Single Circuit Transmission Line	36
<i>Xianmin Mu (DaLian University of Technology, China), Jiwei Guo (DaLian University of Technology, China), Jialin Li (DaLian University of Technology, China), and Qiyu Sheng (DaLian University of Technology, China)</i>	
Research on Analysis Method of Current Loop Fault in High Voltage Electric Energy Metering Device	41
<i>Chaonan Liu (State Grid of Technology College, China), Hongzhen Fan (State Grid of Technology College, China), Yuchen Tian (State Grid Shandong Electric Power Company, China), Jinliang Wang (State Grid of Technology College, China), Hao Zhang (State Grid of Technology College, China), and Weiwei Yang (State Grid of Technology College, China)</i>	
Study on Lightning Trip Protection for Distribution Lines in a Certain Area of Northern Guangzhou	46
<i>Qiu Hong (Guangzhou Power Supply Bureau, Guangdong Power Grid Co., Ltd, China), Yuting Chen (Guangzhou Power Supply Bureau, Guangdong Power Grid Co., Ltd, China), Yue He (Guangzhou Power Supply Bureau, Guangdong Power Grid Co., Ltd, China), Zhitao Huang (Guangzhou Power Supply Bureau, Guangdong Power Grid Co., Ltd, China), Xiaotong Huang (Guangzhou Power Supply Bureau, Guangdong Power Grid Co., Ltd, China), Haiying Lu (Guangzhou Power Supply Bureau, Guangdong Power Grid Co., Ltd, China), and Yifeng He (Guangzhou Power Supply Bureau, Guangdong Power Grid Co., Ltd, China)</i>	
Diagnosis and Modelling of Equivalent Circuit Combining WPT by Loosely Coupled Coils through CB Concrete Walls at SBO	51
<i>Kil Mo Koo (Technical Commissioner of the Affiliated Research Institute UMI, South Korea), Soo Woon Park (Researcher of the Affiliated Research Institute UMI, South Korea), Seong Hwan Park (Senior Researcher of the Affiliated Research Institute UMI, South Korea), and Kil Nam Oh (Professor of Division of Health Administration Gwangju University, South Korea)</i>	

Dynamic Equalization Control of Battery Pack Based on Switched Capacitance Method	56
<i>Jing Wu (Hangzhou Technology Development Branch of Zhejiang Dayou Industrial Co., Ltd., China; State Grid Hangzhou Power Supply Company, China), Weiyang Zheng (Hangzhou Technology Development Branch of Zhejiang Dayou Industrial Co., Ltd., China; State Grid Hangzhou Power Supply Company, China), Yanping Jiang (Hangzhou Technology Development Branch of Zhejiang Dayou Industrial Co., Ltd., China; State Grid Hangzhou Power Supply Company, China), Tao Jiang (State Grid Hangzhou Power Supply Company, China), and Yunning Zhang (Hangzhou Dianzi University, China)</i>	
Construction Method of Core Backbone Grid Based on Improved Fireworks Algorithm and Risk Theory	62
<i>Yihui Chen (Wuhan University, China), Lingqi Lin (State Grid Shandong Electric Power Company, China), Wenxin Huang (Wuhan University, China), Xin Tian (State Grid Shandong Electric Power Company, China), Jun Wu (Wuhan University, China), Zihui Guo (Wuhan University, China), and Zichen Liu (Wuhan University, China)</i>	
Metallized Polypropylene Film Capacitor Condition Monitoring in MMC Based on Impedance Measurement	69
<i>Yuting Sun (State Grid Jiangsu Electric Power CO.LTD., China)</i>	

Session 2: Energy Engineering

Model Predictive Control Based Optimal Dispatch of Wind and Hydrogen Hybrid Systems	74
<i>Weiwei Wang (Technical University of Denmark, Denmark), Chunjun Huang (Technical University of Denmark, Denmark), and Yi Zong (Technical University of Denmark, Denmark)</i>	
Optimization Design Envelope for Building in Hot Climate Using Design of Experiment and Life Cycle Cost	81
<i>Hocine Belahya (LENREZA, UKMO Ouargla University Ouargla, Algeria), Abdelghani Boubekri (LENREZA, UKMO Ouargla University Ouargla, Algeria), Rafik Belarbi (LaSIE, Université de la Rochelle, France), and Romani Zaide (National School of Architecture Tetouan, Morocco)</i>	
Research on Control Method of Comfortable Lighting and Energy Saving Lighting	87
<i>Jing Guo (Shaanxi University of Science and Technology, China) and Yujie Zhang (Shaanxi University of Science and Technology, China)</i>	
Improved Energy Management Scheme in Active Distribution Network with Grid-Tied Microgrids.....	93
<i>Feng Qiao (Zhejiang Sci-Tech University, China) and Liang Yuan (Central South University, China)</i>	
Application of Renewable Energy, Advanced Technology, and Energy Efficiency: A Fresh Insight from European Countries	99
<i>Zhang Yu (Chang'an University, China), Syed Abdul Rehman Khan (Xuzhou University of Technology, China), and Hafiz Muhammad Zia-ul-haq (Universiti Malaysia Terengganu, Malaysia)</i>	
Author Index	105