Technical Programme Schedule

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Maximum Power Point Tracking Method for the Voltage-Mode Grid-Connected Inverter of Photovoltaic Generation System
Wen-Jung Chiang, Hurng-Liahng Jou, Jinn-Chang Wu
National Kaohsiung University of Applied Sciences, Taiwan

25 Nov Tues 14.20 - 14.40 **Session: Solar Energy 1**
Paper ID: 100
The Computer Aided Design Method for Determining the Monthly Optimum Tilt Angle of PV Arrays
Gang Yang, Yongxian Du
SUPELEC, France

25 Nov Tues 14.40 - 15.00 **Session: Solar Energy 1**
Paper ID: 101
Modelling and Simulation of Solar PV Array under Partial Shaded
Ramaprabha Ramabadran, BadriLal Mathur
SSN College of Engineering, India

25 Nov Tues 15.00 - 15.20 **Session: Solar Energy 1**
Paper ID: 116
Behavior Matching Technique Applied to a Three-Phase Grid-Connected PV System
Marcio Casaro, Denizar Martins
Federal University of Santa Catarina, Brazil

25 Nov Tues 15.20 - 15.40 **Session: Solar Energy 1**
Paper ID: 131
Application of the dq0 Transformation in the Three-Phase Grid-Connected PV Systems with Active and Reactive Power Control
Mateus Schonardie, Denizar Martins
Federal University of Santa Catarina, Brazil

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Paper ID: 97
Cogging Torque Reduction in Dual-Rotor Permanent Magnet Generator for Direct Coupled Stand-Alone Wind Energy Systems
P.Sivachandran Paulsamy
NATIONAL ENGINEERING COLLEGE, India

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Paper ID: 98
A Test Facility for the Data Acquisition and Signal Analysis of the Wind Power System
Gang Yang

SUPELEC, France

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Paper ID: 356
Nonlinear Model Predictive control (NMPC) of Fixed Pitch Variable Speed Wind Turbine
D Q Dang, Y Wang, W Cai
Nanyang Technological University, Singapore

25 Nov Tues 15.00 - 15.20 **Session: Wind Energy 1**
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Voltage Regulation of a Stand-Alone Induction Generator using Thyristor-Switched Capacitors
M. H. Haque
Nanyang Technological University, Singapore

25 Nov Tues 15.20 - 15.40 **Session: Wind Energy 1**
Paper ID: 65
Demonstration of Parallel Operation of Single-Phase and Three-Phase Induction Generators for Off-Grid Operation
M. H. Haque
Nanyang Technological University, Singapore

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Paper ID: 92
An Agent-based Approach to Renewable Energy Management in Eco-building
Jun Zeng, Jie Wu, Junfeng Liu, Lamei Gao, Min Li
College of Electric Power, South China University of Technology, China

25 Nov Tues 14.20 - 14.40 **Session: Alternative Energy 1**
Paper ID: 94
VSC with T-Connected Transformer Based Decoupled Controller for a Pico Hydro Power Generation
Gaurav Kasal, Bhim Singh
IIT Delhi, India

25 Nov Tues 14.40 - 15.00 **Session: Alternative Energy 1**
Paper ID: 102
CLEAN ENERGY POLICY IN SINGAPORE: AN UPDATE
Leong Hua Tey, Alex Kok Bin See
Ngee Ann Polytechnic, Singapore

25 Nov Tues 15.00 - 15.20 **Session: Alternative Energy 1**
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An empirical analysis for the import risk of China's petroleum products based on the improved portfolio approach
Gang Wu, Yi-Ming Wei, Ying Fan
Institute of Policy and Management (IPM), Chinese Academy of Sciences, China

25 Nov Tues 15.20 - 15.40 **Session: Alternative Energy 1**
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Robust LED Backlight Driver with Low Output Voltage Drop and High Output Current Accuracy
Tse-Ju Liao, Chern-Lin Chen
Graduate Institute of Electronics Engineering, National Taiwan University, Taiwan

25 Nov Tues 14.00 - 14.20 **Session: Energy Distribution 1**
Paper ID: 109
Multi-class Support Vector Machine Approach for Fault classification in Power Transmission Line
Malathi Veluchamy, Marimuthu N.S.
Raja College of Engineering and Technology, Madurai, India

25 Nov Tues 14.20 - 14.40 **Session: Energy Distribution 1**
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Detection and Classification of Impulse faults in transformer using Wavelet Transform and Artificial Neural Network
Santhi S, Vanamadevi N, Arivamudhan M
Annamalai University, India

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Paper ID: 268
Multi-Agent Coordination for DER in MicroGrid
Logenthiran Thillainathan, Dipti Srinivasan
National University of Singapore, Singapore

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Modeling and Optimization of Renewables: Applying the Energy Hub Approach
Matthias Schulze, Lukas Friedrich, Matthias Gautschi
ETH Zurich, Switzerland

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AGC FOR DISTIBUTED GENERATION
Santosh kumar Bogi, Mishra Sukumar, Senroy Nilanjan
IIT DELHI, India

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Optimal Bidding Strategies for Multi-unit Pumped Storage Plant in Pool-Based Electricity Market Using Evolutionary Tristate PSO
Kanakasabapathy P, Shanti Swarup K
Indian Institute of Technology Madras, India

25 Nov Tues 14.20 - 14.40 **Session: Energy Storage 1**
Paper ID: 86
Multilevel Peukert Equations Based Residual Capacity Estimation Method for Lead-Acid Battery
Yu-Hua Sun, Hurng-Liahng Jou, Jinn-Chang Wu
National Kaohsiung University of Applied Sciences, Taiwan

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A Simulation Study on Solar Energy Seasonal Storage by Phase Change Material
QI QI, Yiqiang Jiang, Shiming Deng
Department of Building Services Engineering, The Hong Kong Polytechnic University, Hong Kong

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Ripple Voltage Suppression Method for DC/DC Boost Converter of the Grid-Connected Renewable Power Generation System
Jia-Min Shen, Hurng-Liahng Jou, Jinn-Chang Wu
National Kaohsiung University of Applied Sciences, Taiwan

25 Nov Tues 15.20 - 15.40 Session: Energy Storage 1
Paper ID: 321
Soft Switched AC-Link Direct-Connect Photovoltaic Inverter
Mahshid Amirabadi, Anand Balakrishnan, Hamid Toliyat, William Alexander
Texas A&M University, USA

25 Nov Tues 14.00 - 14.20 Session: Energy Efficiency 1
Paper ID: 67
A New Evaluation System for Energy Saving Based on Energy Efficiency and Loss Ratio
Yongqiang Zhu, Zhongdong Yin
North China Electric Power University, China

25 Nov Tues 14.20 - 14.40 Session: Energy Efficiency 1
Paper ID: 80
Analysis of a Switched-Reluctance Generator for Maximum Energy Conversion
Supakit Wongguokoon, Supat Kittiratsatcha
King Mongkut's Institute of Technology Ladkrabang, Thailand

25 Nov Tues 14.40 - 15.00 Session: Energy Efficiency 1
Paper ID: 103
Transmission Expansion Planning Considering Network Adequacy and Losses Using DCGA
Saeed Jalilzadeh, Ahad Kazemi, Hosein Haddadian, Meisam Mahdavi
Zanjan University, Iran

25 Nov Tues 15.00 - 15.20 Session: Energy Efficiency 1
Paper ID: 122
Dead-Time Elimination of PWM-Controlled Inverter/Converter without Separate Power Sources for Current Polarity Detection Circuit
Yong-Kai Lin, Yen-Shin Lai
National Taipei University of Technology, Taiwan

25 Nov Tues 15.20 - 15.40 Session: Energy Efficiency 1
Paper ID: 144
LLC Resonant Converter for Wireless Energy Transmission System with PLL Control
Tso-Sheng Chan, Chern-Lin Chen
Graduate Institute of Electronics Engineering, National Taiwan University, Taiwan

25 Nov Tues 15.40 - 17.00 Session: Poster 1
Paper ID: 62
Multi-mode MPPT Control for Improved Efficiency
Jung-Min Kwon, Woo-Young Choi, Bong-Hwan Kwon
POSTECH, KOREA

25 Nov Tues 15.40 - 17.00 Session: Poster 1
Paper ID: 66

An Automated and Economic System for Measuring of the Current-Voltage Characteristics of Photovoltaic Cells and modules
Dariga Meekhun, Vincent Boitier, Jean-Marie Dilhac, Gregory Blin
LAAS-CNRS ; Université de Toulouse, France

25 Nov Tues 15.40 - 17.00 Session: Poster 1
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Compound material for injection molded PEM fuel cell bipolar plates
Shiuh-Ming Chang, Jenn-Kun Kuo
Kao Yuan University, Taiwan

25 Nov Tues 15.40 - 17.00 Session: Poster 1
Paper ID: 71
A SCADA System Application in Load Management
Jung-Chin Chen, Jong-Ching Hwang, Ching Terng Cheng
National Kaohsiung University of Applied Sciences (KUAS), Department of Electrical Engineering, Taiwan

25 Nov Tues 15.40 - 17.00 Session: Poster 1
Paper ID: 73
Computer-Aided Automatic Measurement System for Characterizing PV Modules
Shun Chung Wang, Yi-Hua Liu
Dept. of Electrical Engineering, Lunghwa University of Science and Technology, Taiwan

25 Nov Tues 15.40 - 17.00 Session: Poster 1
Paper ID: 74
Photovoltaic properties and stability of pentacene-fullerene double heterojunction devices
Terence Wong, Yong Xu
Nanyang Technological University, Singapore

25 Nov Tues 15.40 - 17.00 Session: Poster 1
Paper ID: 75
Optimal Allocation for Improving System Reliability Using AHP
Gwo-Luh Lee, Horng-Jyh Lin, Tse-Wei Yu, Jong-Yih Chen, Chih-Chieh Ma
Vanung University, Taiwan

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Paper ID: 76
Development of Fault Location Algorithm for Distribution Networks
Guo-fang Zhu, Yu-ping Lu
Southeast University, China

25 Nov Tues 15.40 - 17.00 Session: Poster 1
Paper ID: 82
Voltage Transient Study of Wind Farm under Power System Fault
Xin-yan Zhang, Wei-qing Wang
Electrical engineering school of Xi'an Jiaotong university and Xinjiang university, China

25 Nov Tues 15.40 - 17.00 Session: Poster 1
Paper ID: 83
The Intelligent Control Method Study of Variable Speed Wind Turbine Generator
Xin-yan Zhang, Wei-qing Wang

Electrical engineering school of Xi'an Jiaotong university and Xinjiang university, China

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An Economic Analysis Model for the Energy Storage Systems in a Deregulated Market
Rong-Ceng Leou
Cheng Shiu University, Taiwan

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Paper ID: 95
Economical Performance Study for NGCC System with CO2 Removal Plant
Rongrong Zhai, Yongping Yang, Liqiang Duan, Qin Yan
North China Electric Power University, China

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Paper ID: 96
Exergy Analysis of CO2 Recovery Process by Specific Consumption
Rongrong Zhai, Yongping Yang, Liqiang Duan, Qin Yan
North China Electric Power University, China

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Solar Radiation Prediction Based on the Artificial Neutral Networks Using the BP Algorithm
Gang Yang, Yongxian Du
SUPELEC, France

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Considering the Torsional Frequencies of an Actual Wind Turbine to Prevent of SSR Phenomena
Saeed Jalilzadeh, Iman Dehestani Kolagar, Meisam Mahdavi, Vahid Nabaei
Zanjan University, Iran

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The Study of the Protection Revision Method Based on the DG Effect to Protection Sensitivity
Xia Lin, Yu-ping Lu, Lian-he Wang
Southeast University, China

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Paper ID: 107
Fuzzy Controller of Variable Pitch Wind Driven Generator Based on Interpolation Algorithm
Peng Xuange, Li Yaolin, Li Peipei
JiangMen Polytechnic, China

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Based on CAN Bus Wind Generating Set Online Monitoring and Fault Diagnosis System
Li Yaolin, Peng Xuange, Li Peipei
East China Jiao Tong University, China

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Evaluation of solar plant to contribute climate change mitigation
Morris Brenna, Federica Foiadelli, Mariacristina Roscia, Dario Zaninelli
UNiversity of Bergamo, Italy

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WRIG based Wind Conversion System Excited by Matrix Converter with Current Control Strategy
Shao Zhang, King Jet Tseng, Trong Duy Nguyen
Nanyang Technological University, Singapore

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Study on Energy Efficiency of Bionic Utilization in the Solar Buildings
Feng-ming Sun, Bao-quan Yin, Wan-jun Hou, Jun-hua Chen
HeBei University of Engineering, Handan,China

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Thermal Storage Cooling Tower for Underground Commercial Building
Wenjie Liu, Xiaoping Miao, Jinsheng Wang, Xibin Ma, Jing Ding
PLA University of Science and Technology, China

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A Flywheel Cell for Energy Storage System
Trong Duy Nguyen, King Jet Tseng, Shao Zhang, Chi Zhang
Nanyang Technological University, Singapore

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Design and Implementation of a RFID-based Power Meter and Outage Recording System
Shun-Yu Chan, Shang-Wen Luan, Jen-Hao Teng, Ming-Chang Ysai
I-Shou Univ., Taiwan

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Paper ID: 127
Design of Modular Inverter for Distributed Power Generation
Pai Fu-Sheng, Huang Shyh-Jier, Hsieh Min-Fu, Lin Chin-Ming
Department of Electronic Engineering, National University of Tainan, Taiwan

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Distribution Model Analysis of High-Efficient Equipments Considering Rebate
Jong Ryul Won, Jung Hoon Kim
Anyang University, South Korea

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Paper ID: 129
Optimal Capacitor Control for Unbalanced Distribution Systems with Distributed Generations
Jen-Hao Teng, Chia-Yen Chen, Chi-Fa Chen, Yi-Hwa Liu
I-Shou Univ., Taiwan

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Paper ID: 132
Research on a Novel Buck-Boost Converter for Wind Turbine Systems
Bing Hu, Liuchen Chang, Yaosuo Xue
University of New Brunswick, Canada

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Control and Design of a Novel Buck-Boost Converter for Wind Turbine Applications
Bing Hu, Liuchen Chang, Yaosuo Xue
University of New Brunswick, Canada

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Paper ID: 136
The Impact on Power Quality by PWM Converter in Micro-grid
Wei Huang, Jianhua Zhang, Qinghua Xie, Ziping Wu,
North China Electric Power University, China

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Paper ID: 137
Controlling and operating analysis of DFIG wind generator between in a large utility network and in an isolated micro-grid
Jingyan Yang, Wei Huang, Renhua Yang, Jianhua Zhang, Xu Yang
North China ElectricPower University, China

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Paper ID: 139
Analysis of Characteristics of Simultaneous Faults in Electrical Power Systems using Wavelet Transform
Atthapol Ngaopitakkul, Worravut Pongchaisrikul, Anantawat Kunakorn
King Mongkut's Institute of Technology Ladkrabang, Thailand

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Simulation and Analysis on the Initial Temperature Profiles in Soils
Xibin Ma, Baoyi Cheng, Wenjie Liu, Jintian Li
PLA University of Science and Technology, China

25 Nov Tues 15.40 - 17.00 **Session: Poster 1**
Paper ID: 147
Soft Switching Interleaved Boost Converter for Photovoltaic Power Generation System
Jun-Ho Kim, Doo-Yong Jung, Jae-Hyung Kim, Su-Won Lee, Yong-Chae Jung
Sungkyunkwan University, South Korea

25 Nov Tues 15.40 - 17.00 **Session: Poster 1**
Paper ID: 148
Stability Analysis of a Non-Inverting Synchronous Buck-Boost Power Converter for a Solar Power Management System
Jaw-Kuen Shiau, Chun-Jen Cheng, Ching-En Tseng
Tamkang University, Taiwan

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Evaluation of Genetic Algorithm based Solar
Tracking System for Photovoltaic Panels
Syamsiah Mashohor, Khairulmizam Samsudin, Amirullah M. Noor, Adi Razlan A. Rahman
Universiti Putra Malaysia, Malaysia

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Development of an Energy Efficient Street Light Driving System
Po-Yen Chen, Yi-Hua Liu, Yeu-Torng Yau, Hung-Chun Lee
National Taiwan University of Science and Technology, Taiwan

25 Nov Tues 15.40 - 17.00 Session: Poster 1
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RGB LED Backlight Driving System with Area Control
Po-Yen Chen, Yi-Hua Liu, Jen-Hao Teng
National Taiwan University of Science and Technology, Taiwan

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Paper ID: 237
Hybrid Eigenvalue Sensitivity for Design of Wide-area PSS to Damp Power System Inter-area Oscillation
Chunyan Li, Yuanzhang Sun, Xiaotao Peng, Xiangyi Chen
School of Electrical Engineering, Wuhan University, China

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Identifiability of Synchronous Generator Parameter based on Physics Models
Xiangyi Chen, Xiaoming Zha, Chunyan Li
School of Electrical Engineering, Wuhan University, China

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Leakage current analysis of a single-phase transformer-less PV inverter connected to the grid
Lin Ma, Fen Tang, Fei Zhou, Xinmin Jin, Yibin Tong
Beijing Jiaotong University, China

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Paper ID: 175
Modeling and Fault Simulation of Photovoltaic Generation Systems Using Circuit-Based Model
Kuei-Hsiang Chao, Ching-Ju Li, Sheng-Han Ho
National Chin-Yi University of Technology, Taiwan

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Paper ID: 192
Fourth Order Buck Converter for Photovoltaic Maximum Power Point Tracking Applications
Veerachary Mummadi
Indian Institute of Technology Delhi, India

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Paper ID: 193
Improved Maximum Power Point Tracking Algorithm for Photovoltaic Sources

Veerachary Mummadi
Indian Institute of Technology Delhi, India

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A Summary of Plane Division Maximum Power Point Tracking Methods
Hirotaka Koizumi
Tokyo University of Science, Japan

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Designing a Wind-Diesel Hybrid Remote Area Power Supply (RAPS) System
David Edwards, Michael Negnevitsky
University of Tasmania, Australia

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Soft Switched AC-Link Wind Power Converter
Anand Balakrishnan, Mahshid Amirabadi, Hamid Toliyat, William Alexander
Texas A&M University, USA

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Vector Control of the Brushless Doubly-Fed Machine for Wind Power Generation
Shiyi Shao, Ehsan Abdi, Richard McMahon
University of Cambridge, UK

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Losses and Pulsating Torques in DFIGs with Unbalanced Stator and Rotor Excitation
Sinisa Djurovic, Steve Williamson
School of E&EE, The University of Manchester, UK

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Interline Power Flow Controller (IPFC) Based Damping Controllers for Damping Low Frequency Oscillations in a Power System
Alivelu Manga Parimi, Irraivan Elamvazuthi
Universiti Teknologi PETRONAS, Malaysia

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Benzothiadiazole-Cored Regioregular Oligothiophenes as Building Blocks for Novel Crystalline Low Band-Gap Conjugated Polymers with Solution Processibility
Jianping Lu, Fushun Liang, Nicolas Drolet, Jianfu Ding, Ye Tao
Institute for Microstructural Sciences, National Research Council of Canada, Canada

26 Nov Wed 09.20 - 09.40 **Session: Alternative Energy 2**
Paper ID: 138
Dynamic Modelling and Simulation of a Micro-turbine Generation System in the Mirogrid
Wei Huang, Jianhua Zhang, Ziping Wu, Ming Niu
North China Electric Power University, China

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Paper ID: 150
A Novel Voltage-Boosting Converter with Passive Voltage Clamping
K. I. Hwu, Y. T. Yau, Y. H. Chen
Center for Power Electronics Technology, National Taipei University of Technology, Taiwan

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Study on Microwave Radiation Pyrolysis of Biomass
Xiaoya Guo, Bo Zhou, Yong Zheng
Shanghai University, China

26 Nov Wed 10.20 - 10.40 **Session: Alternative Energy 2**
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BIOGAS PRODUCTION FROM BANANA STEM WASTE: OPTIMISATION OF 10 L SEQUENCING BATCH REACTOR
N Zainol, J Salihon, R Abdul-Rahman
UMP, Malaysia

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Voltage Stability Margin Enhancement Through Optimal Location of Var Compensator
Kowsalya Muniswamy, Kalyan K Ray, D. P. Kothari
VIT University , Vellore,, India

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Isolated H-Bridge VSC Based 3-Phase 4-Wire DSTATCOM for Power Quality Improvement
Bhim Singh, Jayaprakash P, Kothari D P
Indian Institute of Technology, Delhi, India

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Paper ID: 225
A Two-Level 24-Pulse Voltage Source Converter with Fundamental Frequency Switching for HVDC System
Madhan Mohan, Bhim Singh, Bijaya Ketten Panigrahi
Indian Institue of Technology Delhi, India

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Paper ID: 269
Design and Analysis of User-Defined Constant Switching Frequency Current Control based Four Leg DSTATCOM
Vincent George, Mahesh Kumar Mishra
Indian Institute of Technology Madras, India

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Paper ID: 174
Optimal Controller Design of SVC for system stability improvement
Bahman Khaki, Babak Mozafari, Amir Mehrtash, Reza Sirjani, Amir Parastar
iran electrical energy market, Iran

26 Nov Wed 09.00 - 09.20 **Session: Energy Storage 2**
Paper ID: 135
Application of ANN and DSM Techniques for peak load Management a Case Study
Ravi Babu Pallikonda, Sree Divya V.P
SreeNidhi Institute of Science and Technology, India

26 Nov Wed 09.20 - 09.40 **Session: Energy Storage 2**
Paper ID: 173
A Clean Power System Combining Fuel Cell and Ultracapacitor and Its Application in Electric Scooter
Junbo Jia, Gucheng Wang, Zengpei Zhu, Yew Thean Cham, Ming Han
Nanyang Technological University, Singapore

26 Nov Wed 09.40 - 10.00 **Session: Energy Storage 2**
Paper ID: 183
Improving the Capability of Solar Thermal Energy Storage by Using a Hybrid Energy Storage System
Zaeem Moosavi Mohamadi, Hassan Zohoor
Islamic Azad University, Iran

26 Nov Wed 10.00 - 10.20 **Session: Energy Storage 2**
Paper ID: 325
Wind Power Integration in Isolated Grids enabled by Variable Speed Pumped Storage Hydropower Plant
Jon Are Suul, Kjetil Uhlen, Tore Undeland
Norwegian University of Science and Technology, Norway

26 Nov Wed 10.20 - 10.40 **Session: Energy Storage 2**
Paper ID: 171
Dynamic Characteristic Study of PEM Fuel Cell
Junbo Jia, Youyi Wang, Ming Han, Yew Thean Cham
Nanyang Technological University, Singapore

26 Nov Wed 09.00 - 09.20 **Session: Energy Efficiency 2**
Paper ID: 151
Simple Design of a Soft-Switching Buck Converter
K. I. Hwu, Y. T. Yau
Center for Power Electronics Technology, National Taipei University of Technology, Taiwan

26 Nov Wed 09.20 - 09.40 **Session: Energy Efficiency 2**
Paper ID: 153
Design of a Digitalized Burn-in Test Plant
K. I. Hwu, Y. H. Chen
Center for Power Electronics Technology, National Taipei University of Technology, Taiwan

26 Nov Wed 09.40 - 10.00 **Session: Energy Efficiency 2**
Paper ID: 154
Development of two power supply modules paralleled
K. I. Hwu, Y. T. Yau
Center for Power Electronics Technology, National Taipei University of Technology, Taiwan

26 Nov Wed 10.00 - 10.20 **Session: Energy Efficiency 2**

Paper ID: 164
Ultra Step-Up DC-DC Converter with Reduced Switch
Abbas Fardoun, Esam Ismail
College of Technological Studies, Kuwait

26 Nov Wed 10.20 - 10.40 Session: Energy Efficiency 2
Paper ID: 165
SEPIC Converter with Zero Input and Output Current Ripple and Intrinsic Voltage Doubler Characteristic
Esam Ismail, Abbas Fardoun
College of Technological Studies, Kuwait

26 Nov Wed 11.00 - 11.20 Session: Solar Energy 3
Paper ID: 222
DC Bus Regulation Strategy for Grid-Connected PV Power Generation System
Yaow-Ming Chen, Hsu-Chin Wu, Yung-Chu Chen
Department of Electrical Engineering, National Chung Cheng University, Taiwan

26 Nov Wed 11.20 - 11.40 Session: Solar Energy 3
Paper ID: 224
Predicting the Electrical Behavior of Grid-Tied Photovoltaic Systems in Al Ain – UAE / Model and Case Study
Ali Assi
United Arab Emirates University, UAE

26 Nov Wed 11.40 - 12.00 Session: Solar Energy 3
Paper ID: 226
Integrating Solar Energy into Wet Cooling Tower to Prevent Plume Formation – A Novel Approach
Mohammad Hassan Panjeshahi, Mona Gharaie, Lena Ahmadi
K. N. Toosi University of Technology, Iran

26 Nov Wed 12.00 - 12.20 Session: Solar Energy 3
Paper ID: 233
Modeling and Evaluation of a Terrestrial Solar Panel in Space Environment
Somayeh Imani, Amir Hossein Rezaie, Mohsen Taherbaneh
Amirkabir University of Technology, Iran

26 Nov Wed 12.20 - 12.40 Session: Solar Energy 3
Paper ID: 238
Selective Hopping Maximum Power Point Tracking Method for PV Systems
Carlos A. Giraldo-Castañeda, Lionel R. Orama-Exclusa
University of Puerto Rico, Mayaguez, Puerto Rico

26 Nov Wed 11.00 - 11.20 Session: Wind Energy 3
Paper ID: 163
Coordinate Control Strategy Based on Expert Decision System of Wind Turbine
Xingjia Yao, Xiaodong Wang, Zuoxia Xing, Jun Liu
Wind Energy Institute Shenyang University of Technology, China

26 Nov Wed 11.20 - 11.40 Session: Wind Energy 3
Paper ID: 166
Stabilization of Pitch Controlled Wind Turbine Induction Generator By STATCOM

Mamta M. Misal, Mohan K. Khedkar
Visvesvaraya National Institute of Technology,Nagpur., India

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PC based wireless wind data analyser
Revansiddappa Badami, Ashok S, Suresh Jangamshetti
B.V.V.S.Polytechnic Bagalkot Karnataka, India

26 Nov Wed 12.00 - 12.20 Session: Wind Energy 3
Paper ID: 188
Reliability Evaluation of Wind Power in North Karnataka, India - A Case Study
Suchitra Gopalan, Suresh Jangamshetti, Raju A.B.
Basaveshwar Engineering College Bagalkot, Karnataka, India, India

26 Nov Wed 12.20 - 12.40 Session: Wind Energy 3
Paper ID: 262
Investigation on the Behavior and Harmonic Voltage Distortion of Terminal Voltage Regulation by Static Var Compensators
Budhapon Sawetsakulanond, Vijit Kinnares
Mahanakorn University of Technology, Thailand

26 Nov Wed 11.00 - 11.20 Session: Alternative Energy 3
Paper ID: 182
SYNTHESIS AND CHARACTERIZATION OF PEROVSKITE BASED OXIDES FOR SOLID OXIDE FUEL CELL MATERIALS
Ismunandar Ismunandar, B. Prijamboedi, N. R. Sari, A Nursanto
Inorganic and Physical Chemistry Div., FMIPA, Institut Teknologi Bandung, Indonesia

26 Nov Wed 11.20 - 11.40 Session: Alternative Energy 3
Paper ID: 202
Low Temperature Differential Stirling Engine Based Power Generation
Paul Gaynor, Russell Webb, Caleb Lloyd
University of Canterbury, New Zealand

26 Nov Wed 11.40 - 12.00 Session: Alternative Energy 3
Paper ID: 205
An Improved Delta Modulation Technique for DC-DC Buck Converters
Yaow-Ming Chen, Yung-Chu Chen, Hsu-Chin Wu, Tsung-Ming Chen
Department of Electrical Engineering, National Chung Cheng University, Taiwan

26 Nov Wed 12.00 - 12.20 Session: Alternative Energy 3
Paper ID: 215
Using strong sustainability to optimize electricity generation fuel mixes
Justin Bishop, Gehan Amaratunga, Cuauhtemoc Rodriguez
University of Cambridge, UK

26 Nov Wed 12.20 - 12.40 Session: Alternative Energy 3
Paper ID: 258
A Small Segmented Oscillating Water Column using a Savonius Rotor Turbine
Chi-Chien Lin, David Dorrell, Min-Fu Hsieh
University of Technology, Sydney, Australia

26 Nov Wed 11.00 - 11.20 **Session: Energy Distribution 3**
Paper ID: 287
A Physics-based Model of a HCCI Engine with Electric Mechanical Valves
Chia-Jui Chiang
National Taiwan University of Science and Technology, Taiwan

26 Nov Wed 11.20 - 11.40 **Session: Energy Distribution 3**
Paper ID: 308
CO2 Emission Basic Unit Control Mechanism in a Distributed Energy Management System Using the Market Oriented Programming
Yohei Sugimoto, Toshiyuki Miyamoto, Sadatoshi Kumagai, Kazuyuki Mori, Shoichi Kitamura
Osaka University, Japan

26 Nov Wed 11.40 - 12.00 **Session: Energy Distribution 3**
Paper ID: 319
The Virtual Power Station
Glenn Platt, Ying Guo, Jiaming Li, Sam West
CSIRO Energy Technology, Australia

26 Nov Wed 12.00 - 12.20 **Session: Energy Distribution 3**
Paper ID: 335
"Living and Mobility"- A Novel Multipurpose in-house Grid Interface with Plug in Hybrid BlueAngle
Udaya Madawala, Paul Schweizer, Vinzenz Haerri
University of Auckland, New Zealand

26 Nov Wed 12.20 - 12.40 **Session: Energy Distribution 3**
Paper ID: 141
Realization of Load Management by Power Line Carrier and LabVIEW
Rong-Ching Wu, Jin-Cheng Kang, Chen-Lin Sung, Ching-Tai Chiang
Department of Electrical Engineering, I-Shou University, Taiwan

26 Nov Wed 11.00 - 11.20 **Session: Energy Storage 3**
Paper ID: 190
Design and Modeling of Vacuum Packaged MEMS Thermoelectric Power Generator Using Heat Dissipation Path
Jin Xie, Chengkuo Lee
National University of Singapore, Singapore

26 Nov Wed 11.20 - 11.40 **Session: Energy Storage 3**
Paper ID: 191
Multi-Input Integrated Buck-Boost Converter For Photovoltaic Applications
Veerachary Mummadi
Indian Institute of Technology Delhi, India

26 Nov Wed 11.40 - 12.00 **Session: Energy Storage 3**
Paper ID: 194
Theoretical Study of the Output Energy for Various MEMS Based Electrostatic Mechanisms
Ye Mei Lim, Bin Yang, Rama Krishna Kotlanka, Chun Huat Heng, Jin Xie
National University of Singapore, Singapore

26 Nov Wed 12.00 - 12.20 **Session: Energy Storage 3**
Paper ID: 213
Charge Equalizer Design Method Based on Battery Modularization
Hong-Sun Park, Chol-Ho Kim, Gun-Woo Moon
Korea Advanced Institute of Science and Technology, KOREA

26 Nov Wed 11.00 - 11.20 **Session: Energy Efficiency 3**
Paper ID: 197
Wireless Automated Digital Energy Meter
Bharath P, Ananth N, Vijetha S, Jyothi Prakash K V
JSS Academy of Technical Education,Bangalore, India

26 Nov Wed 11.20 - 11.40 **Session: Energy Efficiency 3**
Paper ID: 203
Optimum Ecology Driving for Electrical Vehicle and Fabrication of Small Fuel Cell Electrical Vehicle
Yoshihiko Takahashi, Kentaro Hirayama, Kenichi Iwaki, Hiroyuki Suzuki, Toshiaki Tanaka
Kanagawa Institute of Technology, Japan

26 Nov Wed 11.40 - 12.00 **Session: Energy Efficiency 3**
Paper ID: 208
Energy Consumption Modeling and Optimization for Production Machines
Anton Dietmair, Alexander Verl
Unversitaet Stuttgart, Germany

26 Nov Wed 12.00 - 12.20 **Session: Energy Efficiency 3**
Paper ID: 210
Nonintrusive Method for Estimating Field Efficiency of Inverter-Fed Induction Motor Using Measured Values
Punyaphat Phumiphak, Chaiwut Chat-uthai
King Mongkut's Institute of Technology Ladkrabang, Thailand

26 Nov Wed 12.20 - 12.40 **Session: Energy Efficiency 3**
Paper ID: 214
Performance Estimation Method for In-Service Single-Phase Induction Motors
Punyaphat Phumiphak, Chaiwut Chat-uthai
King Mongkut's Institute of Technology Ladkrabang, Thailand

26 Nov Wed 14.00 - 14.20 **Session: Solar Energy 4**
Paper ID: 244
Cost Boundaries for Future PV Solar Cell Modules
Brian Azzopardi, Joseph Mutale, Daniel Kirschen
University of Manchester, UK

26 Nov Wed 14.20 - 14.40 **Session: Solar Energy 4**
Paper ID: 254
series connected photovoltaic power inverter
Fei Kong, Cuauhtemoc Rodriguez, Gehan A. J. Amaratunga, Sanjib K.Panda
University of Cambridge, UK

26 Nov Wed 14.40 - 15.00 **Session: Solar Energy 4**
Paper ID: 256

Modular Cylindrical Photovoltaic Array For Fixed And Portable Applications
Michael Tocher
Winzler & Kelly, USA

26 Nov Wed 15.00 - 15.20 **Session: Solar Energy 4**
Paper ID: 281
Design and Experience of Grid-connecting Photovoltaic Power System
Wang jianqiang, Li Jinxin
Beijing jiaotong University, China

26 Nov Wed 15.20 - 15.40 **Session: Solar Energy 4**
Paper ID: 290
A Simulation Method for Maximum Power Point Tracking against Stepped I-V characteristics
Takuya Arayashiki, Hirotaka Koizumi
Tokyo University of Science, Japan

26 Nov Wed 14.00 - 14.20 **Session: Wind Energy 4**
Paper ID: 199
Stand Alone Wind Power Generating System Employing Permanent Magnet Synchronous Generator
Sheeja V, Jayaprakash P, Bhim Singh, Uma R,
Indian Institute of Technology, Delhi, India

26 Nov Wed 14.20 - 14.40 **Session: Wind Energy 4**
Paper ID: 201
Economic Index for Selection of Wind Turbine Generator at a Site
Sangamesh Doddamani, Suresh Jangamshetti
B V V S Polytechnic (Autonomous), Bagalkot Karanataka, India

26 Nov Wed 14.40 - 15.00 **Session: Wind Energy 4**
Paper ID: 247
A Novel Speed-Sensorless Adaptive Hill Climbing Algorithm for Fast and Efficient Maximum Power Point Tracking of Wind Energy Conversion Systems
Syed Muhammad Raza Kazmi, Hiroki Goto, Hai-Jiao Guo, Osamu Ichinokura
Tohoku University, Japan

26 Nov Wed 15.00 - 15.20 **Session: Wind Energy 4**
Paper ID: 267
Z-source Inverter Based Wind Power Generation System
Uthane Supatti, Fang Z. Peng
Michigan State University, USA

26 Nov Wed 15.20 - 15.40 **Session: Wind Energy 4**
Paper ID: 273
Power Extraction Algorithm for DTC in Wind Power Generation System
JeongMin Kwon, JungHun Kim, Sung-Hyo Kwak, Honghee Lee,
University of Ulsan, Korea

26 Nov Wed 14.00 - 14.20 **Session: Alternative Energy 4**
Paper ID: 70
Regional Behavior Impacts of Electricity Generation in Iranian Electricity Market
Zahra Tavassoli Hojati, Arash Naghavi, Mohamad Ali Azadeh

University of Tehran, Iran

26 Nov Wed 14.20 - 14.40 **Session: Alternative Energy 4**
Paper ID: 232
Hybrid Offshore-wind and Tidal Turbine (HOTT) Energy Conversion I (6-Pulse GTO Rectifier and Inverter)
Mohammad Lutfur Rahman, Yasuyuki Shirai
Kyoto University, Japan

26 Nov Wed 14.40 - 15.00 **Session: Alternative Energy 4**
Paper ID: 235
Development of a hydrogen fuelled 1 kW ultra micro gas turbine with special respect to designing, testing and mapping of the μ-scale combustor
Alexander Robinson, Harald Funke, Patrick Hendrick, Elmar Recker, Jan Peirs
Aachen University of Applied Sciences, Germany

26 Nov Wed 15.00 - 15.20 **Session: Alternative Energy 4**
Paper ID: 249
A Novel Isolated DC DC Converter With Improved Efficiency For Fuel Cell based DC Power Supply Systems
Supratim Basu, Tore Undeland
Bose Research (P) Ltd, India

26 Nov Wed 15.20 - 15.40 **Session: Alternative Energy 4**
Paper ID: 351
A multiphysics approach to the design of a seawave energy conversion system
Marco Trapanese, Angelo Bonanno, Vincenzo Franzitta, Francesco Paolo Muzio
Palermo University, Italy

26 Nov Wed 14.00 - 14.20 **Session: Energy Distribution 4**
Paper ID: 69
Simulation of the Dynamic Model of Energy Consumption Structure in Different Periods in China
Wang Haining, Xue Huifeng
Northwestern Polytechnical University, China

26 Nov Wed 14.20 - 14.40 **Session: Energy Distribution 4**
Paper ID: 158
Risk Anatomy of Data Center Power Distribution Systems
Montri Wiboonrat
Assumption University, Thailand

26 Nov Wed 14.40 - 15.00 **Session: Energy Distribution 4**
Paper ID: 195
Typical Schemes of Feeder Automation for Rural Areas of China
Yinghui Xu, Xiaohui Xu
Guangdong University of Technology, China

26 Nov Wed 15.00 - 15.20 **Session: Energy Distribution 4**
Paper ID: 219
Electrification of isolated areas by interconnecting renewable sources (ERD project): lessons learned
Benjamin Michelon, Ali Nejmi, Jacques Dos Ghali, Abdeslam Dahman Saïdi, Jean-Claude Bolay

Ecole polytechnique Fédérale de Lausanne, Switzerland

26 Nov Wed 15.20 - 15.40 **Session: Energy Distribution 4**
Paper ID: 231
Combined Active and Reactive Power Control with Converter Interfaced Energy Sources
Fainan Hassan, Mikael Wämundson, Math Bollen
STRI, Sweden

26 Nov Wed 14.00 - 14.20 **Session: Energy Storage 4**
Paper ID: 223
Multiphysics and Energetic Modeling of a Vanadium Redox Flow Battery
Christian Blanc, Alfred Rufer
Ecole Polytechnique Fédérale de Lausanne, Switzerland

26 Nov Wed 14.20 - 14.40 **Session: Energy Storage 4**
Paper ID: 234
Benefits of Energy Storages for Wind Power Trading
Steve Völler, Ahmad-Rami Al-Awaad, Johannes Verstege
University of Wuppertal, Germany

26 Nov Wed 14.40 - 15.00 **Session: Energy Storage 4**
Paper ID: 248
Improvement the Possibilities of Capacitive Energy Storage in Metro Railcar by Simulation
Istvan Szenasy
Szechenyi University, Hungary

26 Nov Wed 15.00 - 15.20 **Session: Energy Storage 4**
Paper ID: 299
Economic modeling of a seawater pumped-storage system in the context of São Miguel
André Pina, Christos Ioakimidis, Paulo Ferrão
Instituto Superior Técnico, Portugal

26 Nov Wed 15.20 - 15.40 **Session: Energy Storage 4**
Paper ID: 301
Energy Storage System Base on Supercapacitors with an Unregulated DC-DC Converter and Selective Intermediate Taps
Masatoshi Uno, Hiroyuki Toyota
Japan Aerospace Exploration Agency, Japan

26 Nov Wed 14.00 - 14.20 **Session: Energy Efficiency 4**
Paper ID: 184
a New Method for Increasing Competition in Transmission Expansion Planning
Reza Sirjani, Bahman Khaki, Abolfazl Pirayesh Neghab, Amir Mehrtash, Amir Parastar
Azad University, Science and Research Branch, Iran

26 Nov Wed 14.20 - 14.40 **Session: Energy Efficiency 4**
Paper ID: 227
A Numerical Study of Regional Air Conditioning Mechanism
K. David Huang, Nguyen Anh Tuan, Yang-Cheng Shih, Kuo-Tung Tseng
National Taipei University of Technology, Taiwan

26 Nov Wed 14.40 - 15.00 **Session: Energy Efficiency 4**

Paper ID: 241
Conversion of Conventional Commercialized Window Type Air Conditioning Unit into a Portable Air Conditioning-Heat Pump Unit
Nisakorn Somsuk, Teerapot Wessapan, Sombat Teekasap
Eastern Asia University, Thailand

26 Nov Wed 15.00 - 15.20 Session: Energy Efficiency 4
Paper ID: 277
Self-Tuning Fuzzy Controller for Zero Voltage Switching Power Supply
Prakit Liengpradis, Nimit Boonpirom
Sripatum University, Thailand

26 Nov Wed 15.20 - 15.40 Session: Energy Efficiency 4
Paper ID: 278
Two-Stage Low-Frequency Square-Wave-Driven Electronic Ballast for HID Lamps
Chun-An Cheng, Zheng-He Kuog, Yung-Chine Wu
I-Shou University, Taiwan

26 Nov Wed 15.40 - 17.00 Session: Poster 2
Paper ID: 130
Low Power Fuel Delivery with Programmable Concentration Control for Micro Direct Methanol Fuel Cells
Yuming Yang, Yung C. Liang, Kui Yao
National University of Singapore, Singapore

26 Nov Wed 15.40 - 17.00 Session: Poster 2
Paper ID: 167
Individual Pitch Control for Variable Speed Turbine Blade Load Mitigation
Xingjia Yao, Xiaodong Wang, Zuoxia Xing, Yingming Liu, Jun Liu
Wind Energy Institute Shenyang University of Technology, China

26 Nov Wed 15.40 - 17.00 Session: Poster 2
Paper ID: 168
Dependent-chance Programming Based Optimization Analysis on Integration Capacity of Wind Power
Xu Fei, Lu Zongxiang, Min Yong
State Key Lab of Power Systems, Dept. of Electrical Engineering, Tsinghua University, China

26 Nov Wed 15.40 - 17.00 Session: Poster 2
Paper ID: 176
The IEC 61970-Based Software Frame and Information Integration of EMS for a Multi-Distributed-Generation Microgrid System
Meiqin Mao, Ming Ding, Liuchen Chang, Jianhui Su
Institute Of Energy Research, the Research Center for Photovoltaic Engineering Systems, Ministry Of Education, PRC., Hefei University of Technology, China

26 Nov Wed 15.40 - 17.00 Session: Poster 2
Paper ID: 177
Integration and Intelligent Control of Micro-Grids with Multi-Energy Generations: A Review
Meiqin Mao, Liuchen Chang, Ming Ding
Institute Of Energy Research, the Research Center for Photovoltaic Engineering Systems, Ministry Of Education, PRC., Hefei University of Technology, China

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 179
Auto-disturbance Rejection Controller Design for Superconducting Magnetic Energy Storage
Xiaotao Peng, Jun Yang, Houzhen Cui, Jinyu Wen
Wuhan University, Department of Electrical Power engineering, China

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 180
Determining the Emergency Capacity of the Upper Reservoir for Black-start in a Pumped Storage Plant
Jingfu Shang, Sheng Li, Ziping Wu, Weiwei Zhao, Jianhua Zhang
North China Electric Power University, China

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 181
Design of City Air Temperature Observation System for Energy Saving Education
Kazuya Takemata, Yoshiyuki Kawata
Kanazawa Institute of Technology, Japan

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 189
Source Impedance to the Integration of Wind and Solar Power System
Mu-Kuen Chen, Chao-Yuan Cheng
St. John's University, Taiwan

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 198
Partial Jacobian Matrix Based Method for Assessing Reactive PowerVoltage Support Ability of Wind Farm
Ning Chen, Lingzhi Zhu, Wei Wang, Xiaodong Zhu
State Grid Electric Power Research Institute,sub-branch of State Grid Corporation of China, China

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 200
Multi-target Controller of Three-level NPC Based VSC-HVDC Transmission System and Its RTDS Simulation
Jianhua Zhang, Sheng Li, Jingfu Shang, Weiwei Zhao, Chunye Li
North China Electric Power University, China

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 207
Operational Analysis and Performance Comparison of Current-Type Z-Source Inverters
Ding Li, Feng Gao, Poh Chiang Loh, Frede Blaabjerg, Lei Zhang
Nanyang Technological University, Singapore

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 211
Development and test of the power multilevel converter for wind turbine systems
Yury Skorohod, Sergey Volskiy
Transconverter ltd, Russia

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 212
Stability Analysis of Microgrids with Constant Power Loads
Duminda Ariyasinghe, Don Mahinda Vilathgamuwa
NTU, Singapore

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 220
Adaptive Protection Schemes of Distributed Generation at Distribution Network for Automatic Reclosing and Voltage Sags
Joon-Ho Choi, Soon-Ryul Nam, Hae-Kon Nam, Jae-Chul Kim
Chonnam National University, Korea

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 221
Small scale production of electricity – a trend for the future?
Jenny Palm, Jenny Palm, Maria Tengvard
Linköping University, Sweden

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 228
A VSC-HVDC Fuzzy Controller to Damp Oscillation of AC/DC Power System
Chunye Li, Sheng Li, Jingfu Shang, Ermin Qiao, Fuchun Han
Taiyuan University of Technology, China

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 230
The Energy Conversion System with Piezoelectric Effect for Wireless sensor network
Jaeyun Lee, Jae-geun Oh, Kwang-soo Kim, Bumkyoo Choi,
Department of Mechanical Engineering, Sogang University, Korea

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 236
Identifying Bad Parameters of State Estimation Considering the WAMS Measurements
Dalu Li, Rui Li, Yuanzhang Sun, Han Chen,
School of Electrical Engineering, Wuhan University, China

26 Nov Thurs 15.40 - 17.00 **Session: Poster 2**
Paper ID: 240
Selection of Installing Locations and Feedback Signals of Wide-area Damping Controller in Large Scale Power Systems
Chunyan Li, Yuanzhang Sun, Xiangyi Chen
School of Electrical Engineering, Wuhan University, China

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 243
Comparative Study of PWM Converter Controls for Grid Integration of Renewable Energy
Shuhui Li, Tim Haskew, Jeff Jackson
University of Alabama, USA

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 250

Nonlinear Average Current Mode Control for a DC-DC Buck Converter
Sreenu Kancherla, Dr. Ramesh Kumar Tripathi
MOTILAL NEHRU NATIONAL INSTITUTE OF TECHNOLOGY, ALLAHABAD, India

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 252
Control Parameter Optimization for a Microgrid System Using Particle Swarm Optimization
Il-Yop Chung, Wenxin Liu, David A. Cartes, Karl Schoder
Flordia State University, USA

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 255
Wireless sensor network for measuring thermal properties of borehole heat exchangers
Julio Martos, José Torres, Jesús Soret, Alvaro Montero
Universitat de València, Spain

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 260
Investigation on the Performance between Standard and High Efficiency Induction Machines operating as Grid Connected Induction Generators
Budhapon Sawetsakulanond, Prasopchok Hothongkham, Vijit Kinnares
King Mongkut's Institute of Technology Ladkrabang, Thailand

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 261
Investigation on the Performance between Standard and High Efficiency Induction Machines operating as Self-Excited
Budhapon Sawetsakulanond, Vijit Kinnares
Mahanakorn University of Technology, Thailand

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 270
Investigation on Congestion-Based Optimal Energy Price for Competitive Electricity Market
Muhammad Bachtiar Nappu, Tapan Kumar Saha, P.A. Jagath Fonseka
The University of Queensland, Australia

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 271
A New Concept of Small-Compressed Air Energy Storage System Integrated with Induction Generator
Varin Vongmanee, Veerapol Monyakul
The Joint Graduate School of Energy and Environment, KMUTT, Thailand

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 272
High Efficiency Current-Doubler Rectifier with Low Output Current Ripple and High Step-Down Voltage Ratio
Chih-Lung Shen, Cheng-Tao Tsai, Yu-En Wu
National Kaohsiung First University of Science and Technology, Taiwan

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 284

Interleaved Soft-Switching Buck Converter with Coupled Inductors
Cheng-Tao Tsai, Chih-Lung Shen
National Kaohsiung First University of Science and Technology, Taiwan

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 286
Pulse Width Modulation (PWM) and Over-Modulation Schemes: a Review for Wind Turbine Systems Application
Bo Yin, Kim B. Larsen, Heng Deng
Vestas Technology R&D Singapore Pte. Ltd., Singapore

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 288
Development of a Fuzzy-Q Control for Achieving Robust Inverter Systems
Yu-En Wu, Chih-Lung Shen, Cheng-Tao Tsai
National Kaohsiung First University of Science and Technology, Taiwan

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 291
Performance Evaluation of Time-Delay Control Schemes for Uninterruptible Power Supplies
Poh Chiang Loh, Yi Tang, Frede Blaabjerg, Peng Wang,
Nanyang Technological University, Singapore

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 300
Equalization Technique Utilizing Series-Parallel Connected Supercapacitors for Energy Storage System
Masatoshi Uno, Hiroyuki Toyota
Japan Aerospace Exploration Agency, Japan

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 303
Intelligent Control for Intentional Islanding Operation of Microgrids
Irvin Balaguer, Uthane Supatti, Qin Lei, Nam-Sup Choi, Fang Peng
Michigan State University, USA

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 306
DYNAMIC VOLTAGE RESTORER AS SAG MITIGATOR AND HARMONIC SUPPRESSOR
K.Chandra Sekaran
UNIVERSITY TECHNOLOGY PETRONAS, MALAYSIA

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 309
Narrow Pulsed Electric Field Generator Using Forword / Flyback Hybrid Converters for Liquid Food Processing
Y.-D. Chang, S.-Y. Tseng, T.-F. Wu, H.-R. Yang
National Chung Cheng University, Taiwan

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 311
Buck converter Associated with Active clamp Flyback converter for PV Power System

S. -Y. Tseng, Y. –J. Li, Y. –J. Wu
Chang Gung University, Taiwan

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 327
A Doubly-fed Induction Generator dynamic model for its use on Wind Power Generation studies
Antonio Jesús Pujante López, Emilio Gómez Lázaro, Juan Álvaro Fuentes Moreno, Antonio Vigueras Rodríguez, Ángel Molina García
Renewable Energy Research Institute (UCLM), Spain

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 328
Dynamic ED under deregulated PM using an improved DE approach
T.W. Lau, T.S. Chung, C.Y. Chung, S.L. Ho,
Hong Kong Polytechnic University, Hong Kong

26 Nov Wed 15.40 - 17.00 **Session: Poster 2**
Paper ID: 178
A New Methodology for Optimizing the Size of Hybrid PV/wind System
Yang Qi, Zhang Jianhua, Liu Zifa, Xia Shu, Li Weiguo
North China Electric Power University, China

27 Nov Thurs 09.00 - 09.20 **Session: Solar Energy 5**
Paper ID: 298
Effects on Short Circuit Level of PV Grid-Connected Systems under Unintentional Islanding
Samatcha Phuttapatimok, Anawach Sangswang, Krissanapong Kirtikara
King Mongkut's University of Technology Thonburi, Thailand

27 Nov Thurs 09.20 - 09.40 **Session: Solar Energy 5**
Paper ID: 304
Variable Structure PWM Controller for High Efficient PV Inverters
Seongjin Oh, Myoungho Sunwoo
Hanyang University, Korea

27 Nov Thurs 09.40 - 10.00 **Session: Solar Energy 5**
Paper ID: 310
Implementation and Performance Evaluation of a Low-Cost Current-Source Grid-Connected Inverter for PV Applications
Gurhan Ertasgin, David M. Whaley, Nesimi Ertugrul, Wen L. Soong
The University of Adelaide, Australia

27 Nov Thurs 09.00 - 09.20 **Session: Wind Energy 5**
Paper ID: 280
Detailed Investigation of Semi-Bridge Switched-Mode Rectifier for Small-Scale Wind Turbine Applications
Mehanathan Pathmanathan, Chun Tang, Wen Soong, Nesimi Ertugrul
The University of Adelaide, Australia

27 Nov Thurs 09.20 - 09.40 **Session: Wind Energy 5**
Paper ID: 347
Application of Gaussian Process to Wind Speed Forecasting for Wind Power Generation
Hiroyuki Mori, Eitaro Kurata

Meiji University, Japan

27 Nov Thurs 09.40 - 10.00 Session: Wind Energy 5
Paper ID: 289
Operational restrictions with maximum power extraction of DFIG connected wind farms
Ajith Tennakoon, Atputharajah Arulampalam, Janaka Ekanayake, Sunil Abeyratne, Sanath Alahakoon
University of Peradeniya, Sri Lanka

27 Nov Thurs 10.00 - 10.20 Session: Wind Energy 5
Paper ID: 313
Field experience with an islanded micro wind power plant
Champa Dharmakeerthi, Atputharajah Arulampalam, Janaka Ekanayake
University of Peradeniya, Sri Lanka

27 Nov Thurs 10.20 - 10.40 Session: Wind Energy 5
Paper ID: 355
Reactive Power Optimization Control of Wind Farms with Fixed-Speed Wind Turbine Generators
Xunwen Su, Zengqiang Mi, Xingjie Liu, Tao Wu
North China Electric Power University,

27 Nov Thurs 09.00 - 09.20 Session: Alternative Energy 5
Paper ID: 120
INTELLIGENT CONTROLLER FOR ELECTRIC VEHICLE
Poorani Shivkumar
SONA COLLEGE OF TECHNOLOGY, India

27 Nov Thurs 09.20 - 09.40 Session: Alternative Energy 5
Paper ID: 251
Interleaved Boost Converter for Hybrid Fuel Cell Systems
Boris Sasic, Milos Zivanov, Laszlo Nagy, Miroslav Lazic
Spellman High Voltage Electronics Corporation, USA

27 Nov Thurs 09.40 - 10.00 Session: Alternative Energy 5
Paper ID: 253
Current THD Reduction and Anti-islanding Detection in Distributed Generation with Grid Voltage Distortion
Mok Hyung Soo, Choe Gyu Ha, Kim Sang Hoon, Lee Jeong Min, Suh In Young
HYOSUNG CORPORATION, Korea

27 Nov Thurs 10.00 - 10.20 Session: Alternative Energy 5
Paper ID: 265
EXPERIMENTAL AND MODELING ASPECTS OF PRODUCER GAS ENGINE
Sridhar Gururaja Rao
SIEMENS CORPORATE TECHNOLOGY India, India

27 Nov Thurs 10.20 - 10.40 Session: Alternative Energy 5
Paper ID: 282
Sustainability Assessment of Biofuels as Alternative Energy Resources
QZ Yang, B Song
Singapore Institute of Manufacturing Technology, Singapore

27 Nov Thurs 09.00 - 09.20 Session: Energy Distribution 5
Paper ID: 152
Torsional Torque Suppression of Decentralized Generators Using H-infinity Observer
Eitaro Omine, Tomonobu Senjyu, Endusa Billy Muhando, Hideomi Sekine, Toshihisa Funabashi
University of the Ryukyus, Japan

27 Nov Thurs 09.20 - 09.40 Session: Energy Distribution 5
Paper ID: 337
Congestion Relief and Load Curtailment Reduction with FACTS Devices
Masoud Barati, Heidar Ali Shayanfar, Ahad Kazemi
Center of Excellent for Power System Automation Department, Iran University of science and Technology, Iran

27 Nov Thurs 09.40 - 10.00 Session: Energy Distribution 5
Paper ID: 338
Congestion Management by a Real-Time Optimal Dispatch through
Masoud Barati, Heidar Ali Shayanfar, Ahad Kazemi
Center of Excellent for Power System Automation Department, Iran University of science and Technology, Iran

27 Nov Thurs 10.00 - 10.20 Session: Energy Distribution 5
Paper ID: 125
Modeling and Power Quality Analysis of STATCOM using Phasor Dynamics
M Hannan, A Mohamed, A Hussain
Dept. Electrica, Electronic & Systems Engineering, Universiti Kebangsaan Malaysia, Malaysia

27 Nov Thurs 10.20 - 10.40 Session: Energy Distribution 5
Paper ID: 341
A Risk Analysis Method for Carbon Price Prediction with Hybrid Intelligent Model in Consideration of Variable Selection of Graphical Modeling
Hiroyuki Mori, Wenjun Jiang
Meiji University, Japan

27 Nov Thurs 09.00 - 09.20 Session: Energy Storage 5
Paper ID: 332
A Model for a Fly-Wheel Driven by a Grid Connected Switch Reluctance Machine
Athula Rajapakse, Udaya Madawala, Dharshana Muthumani
University of Auckland, New Zealand

27 Nov Thurs 09.20 - 09.40 Session: Energy Storage 5
Paper ID: 334
An electric micro-scooter with a supercapacitor energy buffer
Vinzenz Haerri, Udaya Madawala, Daniel Zabkar
University of Auckland, New Zealand

27 Nov Thurs 09.40 - 10.00 Session: Energy Storage 5
Paper ID: 344
A Practical Approach to Tuning of SMES Controller based on Synchronized Phasor Measurements for Interconnected Power System with Wind Farms
Sanchai Dechanupaprittha, Changsong Li, Masayuki Watanabe, Yasunori Mitani, Komsan Hongesombut
Kyushu Institute of Technology, Japan

27 Nov Thurs 10.00 - 10.20 **Session: Energy Storage 5**
Paper ID: 353
HIGH CURRENT, LOW VOLTAGE MODULAR POWER CONVERTER FOR LEAD ACID BATTERY CHARGING
Ilknur Colak, Nejat Tuncay
ITU, Turkey, Turkey

27 Nov Thurs 09.00 - 09.20 **Session: Energy Efficiency 5**
Paper ID: 279
An Electronic Ballast with Digitally Constant Power Control for Supplying Automotive HID Lamps
Chun-An Cheng, Kun-Jheng Lin, Kuan-Lin Chu
I-Shou University, Taiwan

27 Nov Thurs 09.20 - 09.40 **Session: Energy Efficiency 5**
Paper ID: 294
Efficiency Improvement on PDP Sustainer with Half-Voltage Energy Recovery Circuit
Jian-Long Kuo
Department of Mechanical and Automation Engineering, National Kaohsiung First University of Sci. and Tech., NANTZE 811, KAOHSIUNG, Taiwan.

27 Nov Thurs 09.40 - 10.00 **Session: Energy Efficiency 5**
Paper ID: 297
New Space Vector Control Approach for Four Switch Three Phase Inverter under DC – Link Voltage Ripple
Hong-Hee Lee, Phan Quoc Dzung, Le Minh Phuong, Le Dinh Khoa, Huynh Tan Thanh
Faculty of Electrial & Elecronic Engineering, HCMC University of Technology, Vietnam

27 Nov Thurs 10.00 - 10.20 **Session: Energy Efficiency 5**
Paper ID: 314
Design, construction and control of a quasi-resonant SMPS working at 2 MHz.
Stijn Uytterhoeven, Pieter Jacqmaer, Johan Driesen
KULeuven, Department of Electrical Engineering (ESAT), research group Electa, Belgium

27 Nov Thurs 11.00 - 10.20 **Session: Solar Energy 6**
Paper ID: 326
Filter Design for Grid Connected PV Inverters
Hyosung Kim, Kyoung-Hwan Kim
Kongju National University, Korea

27 Nov Thurs 11.20 - 11.40 **Session: Solar Energy 6**
Paper ID: 218
Wind/PV/Diesel Micro Grid System implemented in Remote Islands in the Republic of Maldives
Chem Nayar, Markson Tang, Wuthipong Suponthana
Curtin University of Technology, Australis

27 Nov Thurs 11.40 - 12.00 **Session: Solar Energy 6**
Paper ID: 229
Remote Area Micro-Grid System using Diesel Driven Doubly Fed Induction Generators, Photovoltaic and Wind Generators
Chem Nayar
Curtin University of Technology, Australia

27 Nov Thurs 11.00 - 11.20 **Session: Wind Energy 6**
Paper ID: 239
Stability of the Micro-Grid with Wind Power Generation
Sovannarith Leng, Naebboon Hoonchareon
Chulalongkorn University, Thailand

27 Nov Thurs 11.20 - 11.40 **Session: Wind Energy 6**
Paper ID: 330
Application of Interval Computation Technique to Fixed Speed Wind Energy Conversion System
Rajesh Kumar Thakur, Vivek Agarwal
Indian Institute of Technology - Bombay, India

27 Nov Thurs 11.40 - 12.00 **Session: Wind Energy 6**
Paper ID: 331
Data Mining for Prediction of Wind Farm Power Ramp Rates
Andrew Kusiak
University of Iowa, USA

27 Nov Thurs 12.00 - 12.20 **Session: Wind Energy 6**
Paper ID: 342
Feature Extraction of Meteorological Data Using Regression Tree for Wind Power Generation
Hiroyuki Mori, Akira Awata
Meiji University, Japan

27 Nov Thurs 11.00 - 11.20 **Session: Alternative Energy 6**
Paper ID: 302
Introduction of electric vehicles in an island as a driver to increase renewable energy penetration
André Pina, Christos Ioakimidis, Paulo Ferrão
Instituto Superior Técnico, Portugal

27 Nov Thurs 11.20 - 11.40 **Session: Alternative Energy 6**
Paper ID: 315
Simulation of Electric Drives using freeFOClib
Dietmar Winkler, Clemens Guehmann
Technische Universitaet Berlin, Germany

27 Nov Thurs 11.40 - 12.00 **Session: Alternative Energy 6**
Paper ID: 322
Design, development and test of hydrogen fuel cell powered vehicle
Joerg Weigl, Inayati Inayati, Etienne Zind, Hamdani Saidi
UTM fuel cell vehicle team, Malaysia

27 Nov Thurs 12.00 - 12.20 **Session: Alternative Energy 6**
Paper ID: 333
Maximize Piezoelectric Energy Harvesting Using Synchronous Charge Extraction Technique For Powering Autonomous Wireless Transmitter
Yen Kheng Tan, Jin Yu Lee, Sanjib Kumar Panda
National University of Singapore, Singapore

27 Nov Thurs 12.20 - 12.40 **Session: Alternative Energy 6**
Paper ID: 348

Emulation and Power Conditioning of Outputs From a Direct Drive Wave Energy Converter
Zanxiang Nie, Peter Clifton, Yunxiang Wu, Richard McMahon
University of Cambridge, UK

27 Nov Thurs 11.00 - 11.20 Session: Energy Distribution 6
Paper ID: 204
Discrimination of Power Quality Disturbances using Combined Mathematical Transforms and Artificial Neural Network
Rathika Sakthikumar
Dr.Sivanthi Aditanar College of Engineering,Tiruchendur, Tamilnadu, India

27 Nov Thurs 11.20 - 11.40 Session: Energy Distribution 6
Paper ID: 339
Optimal Price and Quantity Determination of Retailer Electric Contract and maximizing social welfare in Retail Electrical Power Markets with DG
Masoud Barati, Mohammad Nikkhah Mojdehi, Ahad Kazemi
Center of Excellent for Power System Automation Department, Iran University of science and Technology, Iran

27 Nov Thurs 11.40 - 12.00 Session: Energy Distribution 6
Paper ID: 292
Power System Stability Assesment Based on Synchronized Phasor Measurements
Bessie Monchusi, Yasunori Mitani, Li Changsong, Sanchai Dechanupaprittha
Kyushu Institute of Technology, Japan

27 Nov Thurs 12.00 - 12.20 Session: Energy Distribution 6
Paper ID: 317
Optimal Market Settlements Incorporating Voltage Stability
Raul Bachiller, Tuan Le
CHALMERS UNIVERSITY OF TECHNOLOGY, SWEDEN

27 Nov Thurs 11.00 - 11.20 Session: Energy Storage 6
Paper ID: 216
Experimental Study of Flow Energy Merger of Hybrid Pneumatic Power System
Kuohsiu David Huang, Khong Vu Quang, Kuo-Tung Tseng
Da-Yeh University, Taiwan

27 Nov Thurs 11.20 - 11.40 Session: Energy Storage 6
Paper ID: 246
An Improved PV Battery Charger for Low Cost Low Power Stand Alone Low Power Systems
Supratim Basu, Lars Norum, Dalal Dhaval
Bose Research (P) Ltd, India

27 Nov Thurs 11.40 - 12.00 Session: Energy Storage 6
Paper ID: 349
A First-Order Energy Storage Requirements Estimation for an Archimedes Wave Swing Park
Novalio Daratha, Henk Polinder, Miguel de Sousa Prado
Bengkulu University, Indonesia

27 Nov Thurs 12.00 - 12.20 Session: Energy Storage 6
Paper ID: 357
Developing a PEM Fuel Cell Electrical equivalent Circuit

Ali Maswood, S Nandakumar
Nanyang Technological University,

27 Nov Thurs 11.00 - 11.20 **Session: Energy Efficiency 6**
Paper ID: 90
Power Loss Study of Inverter-fed Machine Drives using Discontinuous Pulse Width Modulation
Yunxiang Wu, Shiyi Shao, Richard McMahon, Andy Knight, Yang Zhan
University of Cambidge, UK

27 Nov Thurs 11.20 - 11.40 **Session: Energy Efficiency 6**
Paper ID: 114
Reactive Power Dispatch Scheme Evaluation from Synchronous Based Distributed Generators to Reduce Real Power Loss in Distribution Systems
Komson Daroj, Watthana Limpananwadi
faculty of engineering Ubonrajathanee University, Ubonratchathani, Thailand

27 Nov Thurs 11.40 - 12.00 **Session: Energy Efficiency 6**
Paper ID: 185
A New Method for Power Loss Allocation by Modified Y-Bus Matrix
Amir Parastar, Abolfazl Pirayesh Neghab, Babak Mozafari, Bahman Khaki, Reza Sirjani
islamic azad univerity , science and research branch, iran

27 Nov Thurs 12.00 - 12.20 **Session: Energy Efficiency 6**
Paper ID: 352
New Technologies for Rural Lighting in Developing Countries
Godswill Ofualagba, Victor Oweh, Joy Efejomah
Delta State Polytechnic, Otefe, Oghara, Delta State, Nigeria

27 Nov Thurs 14.00 - 14.20 **Session: Electrical Fault Protection**
Paper ID: 91
A New Fault Location Scheme Based on Distributed Short-circuit Current in Distribution System with DGs
Jinjie Ma, Yuping Lu, Jiao Du, Xia Lin
Southeast University, China

27 Nov Thurs 14.20 - 14.40 **Session: Electrical Fault Protection**
Paper ID: 169
A Transient Current Based Bus Zone Protection
Abdul Gafoor Shaik, Rama Devi Neerukonda, V. Ramana Rao Pulipaka
Bapatla Engineering College, Bapatla, India

27 Nov Thurs 14.40 - 15.00 **Session: Electrical Fault Protection**
Paper ID: 172
A Fault Location Method for Power Cables Based on Fractal Theory
Zhensheng Wu, Xuechang Yang
School of Electrial Engineering, Beijing Jiaotong University, China

27 Nov Thurs 15.00 - 15.20 **Session: Electrical Fault Protection**
Paper ID: 285
Classification and Discussion on Methods for Cascading Failure Analysis in Transmission System
David Watts, Hui Ren
Pontificia Universidad Catolica de Chile, Chile

27 Nov Thurs 15.20 - 15.40 **Session: Electrical Fault Protection**
Paper ID: 295
Three Zones Adaptive Characteristic of the Mho Distance Relay by KU Method
Surachet Dechphung, Trin Saengsuwan
Electrical Engineering Department, Engineering Faculty, Kasetsart University, Thailand

27 Nov Thurs 14.00 - 14.20 **Session: Wind Energy 7**
Paper ID: 257
Fault Ride-Through of Doubly-Fed Induction Generator with Converter Protection Schemes
Jin Yang, David Dorrell, John Fletcher
University of Technology, Sydney, Australia

27 Nov Thurs 14.20 - 14.40 **Session: Wind Energy 7**
Paper ID: 89
Output Power Leveling of Wind Generation System using Interia of Wind Trubine
Tomonobu Senjyu, Yasutaka Ochi, Yasuaki Kikunaga, Motoki Tokudome, Endusa Billy Muhando
University of the Ryukyus, Japan

27 Nov Thurs 14.40 - 15.00 **Session: Wind Energy 7**
Paper ID: 81
Summerization and Study of Fault Diagnosis Technology of the Main Components of Wind Turbine Generator System
Xin-yan Zhang, Wei-qing Wang
Electrical engineering school of Xi'an Jiaotong university and Xinjiang University, China

27 Nov Thurs 15.00 - 15.20 **Session: Wind Energy 7**
Paper ID: 259
Design and Construction of a Three Phase of Self-Exited
Budhapon Sawetsakulanond, Prasopchok Hothongkham, Vijit Kinnares
King Mongkut's Institute of Technology Ladkrabang, Thailand

27 Nov Thurs 14.00 - 14.20 **Session: Electrical Machines**
Paper ID: 293
Field-Oriented Cosecant Modeling for Axial-Flux Two-Phase Brushless Motor Used in Electric Vehicle
Jian-Long Kuo
Department of Mechanical and Automation Engineering, National Kaohsiung First University of Sci. and Tech., NANTZE 811, KAOHSIUNG, Taiwan.

27 Nov Thurs 14.20 - 14.40 **Session: Electrical Machines**
Paper ID: 305
Fault Detection using ANN for Four Switch Three Phase Inverter fed Induction Motor Drive
Hong-Hee Lee, Phan Quoc Dzung, Truong Phuoc Hoa, Le Minh Phuong, Nguyen Xuan Bac
Faculty of Electrial & Elecronic Engineering, HCMC University of Technology, Vietnam

27 Nov Thurs 14.40 - 15.00 **Session: Electrical Machines**
Paper ID: 323
Wide Speed Operation of a Direct Torque and Flux Controlled IPM Synchronous Motor Drive Without a Mechanical Sensor
Gilbert Hock Beng Foo, Saad Sayeef, Faz Rahman
University of New South Wales, Australia

27 Nov Thurs 15.00 - 15.20 **Session: Electrical Machines**
Paper ID: 336
A novel variable speed cage iduction generator
Udaya Madawala, Dharshana Muthumani, Jonathan Bradshaw
University of Auckland, New Zealand

27 Nov Thurs 14.00 - 14.20 **Session: Energy Distribution 7**
Paper ID: 316
Forecasting Spot Electricity Market Prices Using Time Series Models
Dawit Mazengia, Tuan Le
CHALMERS UNIVERSITY OF TECHNOLOGY, SWEDEN

27 Nov Thurs 14.20 - 14.40 **Session: Energy Distribution 7**
Paper ID: 77
Impact of Demand Response Programs on System and Nodal Reliability of a Deregulated Power System
Rahmat Azami, Amir Faraji Fard
ECE school, University of Tehran, Iran

27 Nov Thurs 14.40 - 15.00 **Session: Energy Distribution 7**
Paper ID: 85
Improved Voltage-Current Mode Feeder Automation System Based on GPRS
Yinghui Xu, Xiaohui Xu
Guangdong University of Technology, China

27 Nov Thurs 15.20 - 15.40 **Session: Energy Distribution 7**
Paper ID: 110
Comparative Analysis for Penetration of Distributed Generation in Power Systems
Deependra Singh, Devender Singh, K S Verma
Kamla Nehru Institute of Technology, Sultanpur (UP), India, India