## **2014 IEEE Innovative Smart Grid Technologies - Asia**

**(ISGT ASIA 2014)** 

Kuala Lumpur, Malaysia 20 – 23 May 2014



**IEEE Catalog Number: ISBN:** 

CFP14ISK-POD;9:/3/69;;/34;:/:"

h

1

Modelling UK Power System Frequency Response with Increasing Wind Penetration

An Efficient Unity Power Factor Battery Charging/Discharging Unit

Passive L and LCL Filter Design Method for Gri # @

Finite Time Multi-Agent Coordination of Distributed Generation for Grid Reactive Support

A Multi-input Inverter for Hybrid Photovoltaic Array/ Wind Turbine/ Fuel Cell and Battery Storage System Connected AC Grid Network

A Novel Islanding Detection Method Based on Positive Feedback Between Active Current and Voltage Unbalance Factor

A Distribution Loads Forecast Methodology Based on Transmission Grid Substations SCADA Data

A Comparative Analysis for Different Kinds of Single Diode Model Photovoltaic Module

Photovoltaic Power Prediction and Its Application to Smart Grid

A Stochastic Optimization Approach to Aggregated Electric Vehicles Charging in Smart Grids

An Optimization Framework for Home Demand Side Management Incorporating Electric Vehicles

A Survey on Distribution System Feeder Reconfiguration: Objectives and Solutions

A Research on Distributed Parallel Calculation Management Mode of Power System Considering Space-Time Dimensions

Learning a Context-aware Personal Model of Appliance Usage Patterns in Smart House

Unit Size Optimization of Hybrid Energy System

Decentralized Energy Generation for End-Use Applications: Economic, Social and Environmental Benefits Assessment

A Method of Adjusting Measurements of External Grid Based on Predictor-Corrector Algorithm

Self-adaptive Polyclonal Selection Algorithm-based Multi-objective kW Scheduling Considering Renewables

**Authors** 

Li Ran; William Murrell; Jihong Wang

Hamdy Ashour; Amr Elnagar; Mostaf Abdel-Geliel

Mohamed Atef Abbas Elsaharty; Hamdy Ashour

Mouhacine Benosman; Evangelos Polymeneas

Mohd Azman Rosli; Nor Zaihar Yahaya; Zuhairi Baharudin

Bo Sun; Jun Mei; Jianyong Zheng

Benoit Couraud; Robin Roche

Ahmad Besheer; Almoataz Abdelaziz

Yoshiki Murakami

Ziming Zhu; Sangarapillai Lambotharan; Woon Hau Chin; Zhong Fan

Hosam Sherif; Ziming Zhu; Sangarapillai Lambotharan

Lei Tang; Fang Yang; Jingran Ma

Haibo Zhang; Cunhao Zhu

Xinpeng Zhang; Takekazu Kato; Takashi Matsuyama

Arun S I; Kumaravel S; Selvan M p

Daniel Akinyele; Ramesh Rayudu; Nirmal Nair; Bhujanga Chakrabarti

Haibo Zhang; Penghua Li

Ying Yi Hong; Ching-Ping Wu; Yung-Ruei Chang; Yih-Der Lee; Pang-Wei Liu

Mathematical Modeling of a PEV Service Admission Control (PEVSAC) Scheme in Smart Grid	Khaled Shuaib; Farag Sallabi; Mohammed Adel Abdel-Hafez; Ahmed M. Gaouda
A Measurement Technique to Identify and Locate Partial Discharge in Transformer with AE and HFCT	Urairat Fuangsoongnern
$\label{thm:controller} \mbox{Heuristic Optimisation of State-Of-Charge Feedback Controller for Hourly Dispatch of Hybrid PV/BES System} \\$	Muhamad Zalani Daud; Azah Mohamed
A Method of Load Volatility Auto-identification and Its Application in Demand Side Management	Fang Hou; Yuan-hang Yang; Qin Zhou; Ming Li
Automated Analysis of Power Systems Disturbance Records: Smart Grid Big Data Perspective	Abhisek Ukil; Rastko Zivanovic
State of Charge Estimation Based on a Real-time Battery Model and Iterative Smooth Variable Structure Filter	Taesic Kim; Yebin Wang; Zafer Sahinoglu; Toshihiro Wada; Satoshi Hara; Wei Qiao
Model Predictive Control Based Maximum Power Point Tracking Technique Applied to Ultra Step-Up Boost Converter for PV Applications	Omar Abdel-Rahim; Hirohito Funato
Feasibility of Data Communication Through Distribution Transformers for Smart Grid Applications	Yousef El-Haj; Lutfi Albasha; Ayman El-Hag; Hasan Mir
Secondary Reserve Limitation to Wind Power Penetration in the Spanish Power System	Fidel Fernandez-Bernal; Ignacio Egido; Enrique Lobato
A Comparative Study on the Performance of Custom Power Devices for Power Quality Improvement	Masoud Farhoodnea; Azah Mohamed; Hussain Shareef
A Novel TD-LTE Frame Structure for Heavy Uplink Traffic in Smart Grid	Shi Chen
A New Cascaded Multilevel Inverter Topology with Minimum Number of Conducting Switches	Ahmad Syukri Mohamad; Norman Mariun; Nasri Sulaiman; Mohd Amran Mohd Radzi
A Novel Model Predictive Control for High Gain Switched Inductor Power Conditioning System for Photovoltaic Applications	Omar Abdel-Rahim; Hirohito Funato
Dynamic State Estimator for Detection of Voltage Stability and Low Frequency Oscillation	Matthias Kahl; Daniel Uber; Thomas Leibfried
Home Energy Management From Demand Side in Smart Grid	Yimin Zhou; Yanfeng Chen; Guoqing Xu; Chunhua Zheng
New Forecasting and Modeling Tools for Operating Power Systems with Variable Energy Resources	Kwok Cheung
Distributed Channel Allocation Scheme for Wireless Interference Avoidance in Smart Grid	Chong Tan; Kai Yu; Shi Chen; Haifeng Wang; Zhiyong Bu

Rahman; Nashiren Binti mailah Flicker Power Algorithm Based on Enhanced Phase-Locked Loop (EPLL) Demodulation Nur Fadhilah Jamaludin; Ahmad Farid Abidin Voltage Profile and Loss Assessment of Distribution Systems with Fixed Speed Wind Mohammed Haque Generators Alvin Tan; Izham Z. Abidin; Halimatun Hashim; Phase Comparison Protection for Distribution Networks with High PV Penetration Aidil Azwin Zainul Abidin Comparison of Deployment Distribution Models for Communication Traffic Tomohisa Yamada; Chuzo Ninagawa Evaluation of Multi-hop Wireless Smart Meters Ahmad Zuhdi Muhamad Zamani; Nik Sofizan Nik Yusuf; Mohd Khairun Nizam Mohd Sarmin; Adaptive Load Shedding Scheme for Transmission Line Overloading Problem in TNB Sheikh Kamar Sheikh Abdullah; Azlan Abdul Rahim A New Approach for Real-Time Voltage Stability Monitoring Using PMUs Kai Sun Robust Decentralized Power Oscillation Dampers Design of DFIG Wind Turbines for Issarachai Ngamroo; Tossaporn Surinkaew Stabilization of Inter-Area Oscillation Jie Song; Xiangning Lin; Jinwen Sun; Guo Study of Distributed Busbar Protection Based on a Wireless Sensor Network Qianwen An Approach to Improve Active Power Flow Capability by Using Dynamic Unified Shameem Ahmad; Fadi Albatsh; Saad Mekhilef; **Power Flow Controller** Hazlie Mokhlis

Interoperability in Smart Grid Using IEC 61850 Standard: A Power Utility Prospect

Probabilistic Framework for Evaluation of Smart Grid Resilience of Cascade Failure

A Modified Digital Hysteresis and Artificial Neural Network (ANN) Algorithms in Single

Phase Shunt Active Power Filter Control

The Small Signal Stability Analysis of A Power System Integrated with PMSG-based Wind Farm

The Impact of Electric Vehicle Charging on a Residential Low Voltage Distribution Network in Malaysia

The Microgrid Simulation Tool RAPSim: Description and Case Study

Mohd Iqbal Ridwan; Normi Salwana Miswan; Aminuddin Musa; Muhammad Shahmi Muhammad Shokri; Mohd Noorfazly Noran; Hisyam Noor Awang; Rosli Mat Lajim

Aliyu Sabo; Noor Izzri Abdul Wahab; Mohd

Amran Mohd Radzi; Nor Farahaida Abdul

Zhaoyang Wei; Shaojian Song

Sudha Gupta; Faruk Kazi

Chin Ho Tie; Chin Kim Gan; Khairul Anwar Ibrahim

Manfred Pöchacker; Tamer Khatib; Wilfried Elmenreich

Peter Krasselt; Sebastian Weck; Thomas Voltage-based Harmonic Compensation Using MCCF State Estimation Leibfried Multiobjective Ant Colony Optimization for Fast Charging Stations Planning in Nopbhorn Leeprechanon; Prakornchai Residential Area Phonrattanasak Reserve Constraints in Electricity Markets - Effects on Large Scale Integrated Nigel Cleland; Golbon Zakeri; Brent Young Consumers Zhuoyan Song; Xifan Wang; Yunpeng Xiao; PMSG-based Fractional Frequency Wind Power System Shenguan Liu Power System Security Enhancement and Loss Reduction Using the SMART Power Salah Eldeen Gasim Mohamed Hassan; Jasronita Flow Controller Jasni; Hashim Hizam; Mohd Amran Mohd Radzi Lingyun Wang; Weida Xu; Kexu Zou; Xinjie Lv; Integrated Scheduling for Intelligent Regional Grid Based on Differential Evolution Feng Gao; Wenjun Yin Siti Hajar Binti Raman; Datuk Prof. Dr. Mohd A Human Machine Interface(HMI) Framework for Smart Grid System Ruddin Ab Ghani; Mohd. Ariff Mat Hanafiah; Wan Nor Shela Ezwane Wan Jusoh Electricity Pricing and Social Benefits Analysis in Interaction Between Supply and Chao Du; Xifan Wang; Wang Li; Chengcheng Demand Shao; Jing Shi Kamel Benhmed; Khaled Bashir Shaban; Ayman Cost Effective Assessment of Transformers Using Machine Learning Approach El-Hag Charge Control of Plug-in Electrical Vehicles and Revenue Analysis Chengcheng Shao; Xifan Wang; Chao Du Application of Bio-inspired Krill Herd Algorithm to Combined Heat and Power Pradosh Kumar Adhvaryyu; Pranab **Economic Dispatch** Chattopadhyay; Aniruddha Bhattacharjya Zhiqiang Wang; Lei Guo; Kan Wu; Wenxia Liu; Minimum Load-Shedding Calculation Approach Considering Loads Difference Jinghong Zhou Zhiqiang Wang; Kan Wu; Lei Guo; Wenxia Liu; Impact of Wind Speed Disturbance on Power System Frequency Stability Wendong Cui Zhiqiang Wang; Shengguo Wu; Wenxia Liu; Total Supply Capability for City Distribution Systems Based on the Probability Wenguang Ding Hikma Shabani; Musse Mohamud Ahmed, Dr; Modeling of Novel Zigbee/IEEE802.15.4 MAC Protocol for SCADA Low Voltage Smart Mohamed Hadi Habaebi; Sheroz Khan; Shihab A.

Hameed

**Grid Distribution Systems** 

Design and Implementation of an AMI Emulator for User Feature Studies	Jhoanna Rhodette Ibabao Pedrasa; Michael Angelo A. Pedrasa; Lorenzo Valentino, III; Mark Lester Dumlao
An Option for Solving Power System Problems in the Emerging Power System Networks	Abdul-Ganiyu A. Jimoh; Tajudeen Sikiru
A Novel Predictive DSM Strategy to Match Power Outage Pattern for Optimal Cost with Solar and Diesel Power	Prema V.; Uma Rao K; Amit Closepet
Industrial CHP Optimal Management in the Energy Market Under Incomplete Information	Priit Uuemaa; Imre Drovtar; Jako Kilter; Allan Puusepp; Haralds Vigants; Dagnija Blumberga
Short-Term Load Forecasting for the Electric Bus Station Based on GRA-DE-SVR	Xiaobo Xu; Wenxia Liu; Xi Zhou; Tianyang Zhao
A Scope for the Research and Argument Activities on Electric Vehicle Development Mode in Demonstration City	Leilei Zhang; Wenxia Liu; Zongqi Liu
Demonstration of Direct Load Control of Air Conditioners in High Density Residential Buildings	Michael Angelo A. Pedrasa; Jhoanna Rhodette Ibabao Pedrasa; Melwin Oro; Noriel Christopher Reyes
Bidirectional Battery Charger for Electric Vehicle	Kang Miao Tan; Vigna Kumaran Ramachandaramurthy; Jia Ying Yong
Future Energy Services Outlook From the Perspective of Technological Innovation	Qin Zhang; Juan Li
Communication Networks and Non-Technical Energy Loss Control System for Smart Grid Networks A Synchrophasor Measurements Based Adaptive Underfrequency Load Shedding	Perumalraja Rengaraju; Shunmugham Pandian; Chung-Horng Lung Manorath Prasad; Ranjana Sodhi; Kedar Nath
Scheme Economic Planning of Distribution System	Satish; Kuldeep Meena Aseem Chandel; Durg Singh Chauhan; Deependra Singh
A Five Layer Model for Simulating a Virtual Power Plant	Mahtab Zaeri; Nalin K. Sharda; Ahmad Zahedi
Stability of Power Network State Estimation Under Attack	Alessio Baiocco; Stephen D. Wolthusen
Comparing Performance of Prony Analysis and Matrix Pencil Method for Monitoring Power System Oscillations	Saikat Chakrabarti; Srinivas Chitturi; Sri Singh
Fast Fault Recovery of a Grid Integrated Wind Farm Based HVDC Light Transmission System	Ajay Moodadla; Ujjwala K; Srikanth Nandiraju V
Energy Evaluation and Smart Microgrid for Rural Sarawak	Jason Kok Seng Yeo; Hong Siang Chua

A Heuristic Charging Strategy for Real-Time Operation of PV-based Charging Stations for Electric Vehicles	Qifang Chen; Nian Liu; Xinyi Lu; Jianhua Zhang
Evaluation Method for the Impact of PV Installations Into Distribution Systems	Ken Kuroda; Hideki Magori; Ryuichi Yokoyama; Daisuke Kobayashi; Tomiyasu Ichimura
Modeling and Simulation of Heat Dissipation Due to HVDC Ground Electrodes Using the Finite Element Method	Semaan Georges
Synchronous Reference Frame Based Control Technique for Shunt Hybrid Active Power Filter Under Non-ideal Voltage	Papan Dey; Saad Mekhilef
Multi-objective Optimal Scheduling of a DC Micro-grid Consisted of PV System and EV Charging Station	/ Xinyi Lu; Nian Liu; Qifang Chen; Jianhua Zhang
Study on SOC Schedul and BESS Control for Harmonized EMS in Power Grid with PV	Kosuke Uchida; Yuzuru Ueda
Power Enhancement of Partially Shaded PV Array by Using a Novel Approach for Shade Dispersion	Himanshu Sekhar Sahu; Sisir Kumar Nayak
Estimation Method for Distribution Network Voltage Utilizing Smart Meter Measurements	Kazunori Iwabuchi
An Interactive LED Lighting Interface for High Energy Savings	Ramprakash Kathiresan; Yeo Jiangang Kenneth; Sanjib Kumar Panda; Thomas Reindl; Pritam Das
Small Signal Stability of Weak Power System Integrated with Inertia Tuned Large Scale Wind Farm	Xinze Xi; Hua Geng; Geng Yang
Intelligent Power Management Strategy of Hybrid Distributed Generation System Using Artificial Neural Networks	Nor Aira Zambri; Azah Bt Mohamed; Mohd Zamri Che Wanik
Multi Area State Estimation for Smart Grid Application Utilizing All SCADA and PMU Measurements	Ankush Sharma; S Srivastava; Saikat Chakrabarti
A Distributed Reactive Power Optimization Method for Multi-area Interconnected Power Grid	Jinquan Zhao; Yuejin Ji; Zemei Dai
Braking Resistor as a Smart-Grid Technology	Stefan Habel; Christoph Schmuelling; Stefan Schmuelling
Prediction of Cascade Failure Using Probabilistic Approach with AC Load Flow	Deepshikha Dagur; Madhavi Parimi; Sushama Wagh
Voltage Level Increment by Proposed Sub-Cell for Existing Topologies	Santosh Sappati; Varsha Singh; Abhimanyu Varshney; Rajan Gupta

Dynamic Voltage Restorer Using the Combination of Fuzzy Logic and EPLL Control Strategies: An Optimized Implementation

Optimal Control of Active Power Flows in Smart Microgrids

Demand Response for Smart Grids with Solar Power

Remote Terminal Unit (RTU) Hardware Design and Development for Distribution Automation System

Technical Analysis of Frequency Tracking Possibilities for Contactless Electric Vehicle Charging

Voltage Regulation in a Smart Distribution System Incorporating Variable Renewable Generation

Distributed Generation for Distribution Network Voltage Enhancement and Energy Loss Reduction

A 43-Level 33 kV 3-Phase Modular Multilevel Cascaded Converter for Direct Grid Integration of Renewable Generation Systems

A Comparison of the Popular Home Automation Technologies

Comparison of Singular and Modular Structures of Multiport Converters for Residential Application in Smart Grids

A Comparative Study on Characteristics of Major Topologies of Voltage Source Multilevel PWM Inverters

Practical Study of a Laboratory Undersized Grid-Connected PV System

Functions and Operational Experiences of Real Scale Smart Grid Experimental System

Design of Arduino-based Communication Agent for Rural Indian Microgrids

Estimating Demand Side Management Impacts on Buildings in Smart Grid

Seyedfoad Taghizadeh; Nadia Tan; Behnam Nikouei; Mahmoud Younis

Federico Delfino; Andrea Bonfiglio; Massimo Brignone; Fabio Pampararo; Renato Procopio; Mansueto Rossi; Stefano Bracco; Michela Robba

Nihan Çiçek; Hakan Deliç Wan Nor Shela Ezwane Wan Jusoh; Datuk Prof. Dr. Mohd Ruddin Ab Ghani; Mohd. Ariff Mat Hanafiah; Siti Hajar Binti Raman Benjamin Klaus; Benedikt Lang; Thomas Leibfried

Joseph Petinrin; Mohamed Shaaban

Abdelrahman Idris Adam; Mohamed Shaaban; Khalid Mohamed Nor

Md. Rabiul Islam; Youguang Guo; Mohammad Jafari; Zahra Malekjamshidi; Jian Guo Zhu

Chathura Withanage; Rahul Ashok; Chau Yuen; Kevin Otto

Mohammad Jafari; Zahra Malekjamshidi; Md. Rabiul Islam; Jian Guo Zhu

Mohammad Jafari; Zahra Malekjamshidi; Md. Rabiul Islam; Jian Guo Zhu

Hind Djeghloud; Oussama Guellout; Maria Larakeb; Othmane Bouteldja; Seifeddine Boukebbous; Amar Bentounsi

Noboru Higuchi; YanBin Xu; Toshikazu

Yamamoto; Koichi Nara

Dhiwaakar Purusothaman Soundiah Regunathan Rajasekaran; Rajesh Ramesh; Karan Bajaj;

Vineeth Vijayaraghavan

Sumedh Puradbhat; Rangan Banerjee

Modeling and Simulation of Islanding Detection in Microgrid  Application of Genetic Algorithm for Optimization of Solar Powered Drying	Ahmad Farid Sapar; Chin Kim Gan; Anis Niza Ramani; Meysam Shamshiri Mohammad Mahbubur Rahman
On the Fault Location Algorithm for Distribution Networks in Presence of DG	Payam Farzan; Mahdi Izadi; Chandima Gomes; Mohd Zainal Abidin Ab Kadir; Mohammad Hesam Hesamian; Mohd Amran Mohd Radzi
Model Predictive Control of Distributed Generation Inverter in a Microgrid	Thomas John; Yu Wang; Kuan Tak Tan; Ping Lam So
Using EV Battery Packs for Vehicle-to-Grid Applications: An Economic Analysis	Lav Agarwal; Peng Wang; Lalit Kumar Goel
The Impact of Harmonic Distortion in Grid-Connected PV System Performance	Munirah Ayub; Chin Kim Gan; Aida Fazliana Abdul Kadir
Uncertain Optimization Decision of Interruptible Load in Demand Response Program	Wenjuan Niu; Li Yang
Adaptive Power System Hybrid State Estimation	Manikandan Padmanaban; Avinash K. Sinha
Generating Geospatially Realistic Driving Patterns Derived From Clustering Analysis of Real EV Driving Data	f Anders Bro Pedersen; Andreas Aabrandt; Jacob Østergaard; Bjarne Poulsen
Optimal Design of Hybrid Renewable Energy Systems Based on Solar and Biomass for Halal Products Research Institute, UPM	Mohd Izhwan Muhamad; Mohd Amran Mohd Radzi; Hashim Hizam; Noor Izzri Abdul Wahab
IEC 61850 Based Breaker Failure Protection Scheme Design for TNB Double Busbar Substation	Mohd Noorfazly Noran; Muhammad Shahmi Muhammad Shokri; Mohd Iqbal Ridwan; Zainoren Shukri; Hairol Rizat Sabtu
A Simplified Approach for Fundamental Photovoltaic Module Performance Analysis	Rodney H.G. Tan; Jimmy Vee Hoong Mok
Energy Management for A User Interactive Smart Community: A Stackelberg Game Approach Resource-efficient Model-Predictive PV Control Data Communication A Cyber-Physical Approach for Stochastic Hybrid Control and Safety Verification of Smart Grids	Wayes Tushar; Bo Chai; Chau Yuen; David B Smith; H. Vincent Poor Kai Piontek; Nils Dorsch; Christian Wietfeld Ahsan Shahid
Heat Sink Model and Design Analysis Based on Particle Swarm Optimization	Mohd Zainolarifin Mohd Hanafi; Fatimah Sham Ismail

Muhammad Hilmi Abdul Hamid; Halimatun Under Voltage Load Shedding Using Voltage Stability Indices Hashim; Hairul Azri Abd Rashid; Izham Z. Abidin Qazi Mamoon Ashraf; Mohamed Hadi Habaebi; Autonomic Protocol and Architecture for Devices in Internet of Things Gopinath Rao Sinniah; Musse Mohamud Ahmed, Dr; Sheroz Khan; Shihab A. Hameed Smart EA Operators for Effective Service Restoration of Compensated Distribution Saeed RamezanJamaat; Hernan Aguirre; Youhei Networks Akimoto; Kiyoshi Tanaka Pouya Borazjani; Noor Izzri Abdul Wahab; A Review on Microgrid Control Techniques Hashim b. Hizam; Azura Bt. Che Soh Estimation of Maximum Power Point of PV Array Using Datasheet Values for Himanshu Sekhar Sahu; Samrat Roy; Sisir Kumar Microgrid Integration Siti Salhaillea Sinan; Siti Nursyafigah Shawaludin; Investigation on the AC Breakdown Voltage of RBDPO Olein Jasronita Jasni; Norhafiz Azis; Mohd Zainal Abidin Ab Kadir; Mohd Nazim Mohtar Chamnan Limsakul; Roongrojana Songprakorp; Impact of Photovoltaic Rooftop Scale Penetration Increasing on Low Voltage Power Anawach Sangswang; Ballang Muenpinij; Panom Systems Parinya; Sumate Naetiladdanon Naetiladdanon Mohd Khairun Nizam Mohd Sarmin; MingYe A Systematic Study of System-wide Automatic Coordinated Voltage Control for TNB Zhang; Sheikh Kamar Sheikh Abdullah; Nira Saadun; Muhamad Tarmizi Azmi; Hongbin Sun; Qinglai Guo An Integrated Data Mining Framework for Analysis and Prediction of Battery Marjan Momtazpour; Ratnesh Sharma; Naren Characteristics Ramakrishnan Hossein Zeynal; Jiazhen Yap; Brian Azzopardi; Impact of Electric Vehicle's Integration Into the Economic VAr Dispatch Algorithm Mostafa Eidiani Hossein Zeynal; Mostafa Eidiani; Dariush Intelligent Substation Automation Systems for Robust Operation of Smart Grids Yazdanpanah Online Reinforcement Learning in Multi-Agent Systems for Distributed Energy Bharat Menon; Dipti Srinivasan; Lakhmi Jain; Systems Rahul Mehta Mohammad Seifi; Azura Che Soh; Mohd Khair An Innovative Demand Side Management for Vulnerable Hybrid Microgrid Hassan; Noor Izzri Abdul Wahab

Topology Identification in Smart Grid with Limited Measurements Via Convex Optimization

Liang Zhao; Wen-Zhan Song; Lang Tong; Yuan Wu; Junjie Yang