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Prof. Dushan Boroyevich, American Electric Power Professor at Virginia Tech And The Co-Director of Center for Power Electronics System (CPES)
- Tutorial 2 **Power System Principle Applied in Protection Practice**  
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Kazunari Maki: Chugoku Electric Power Co., Inc. / Energia Economic and Technical Research Institute, Hiroshima prefecture, Japan
- 2C.8 **Estimation of Electromechanical Modes of Power System Using ARMA Model Based on Cross Spectrum** 508  
Hideo Koseki and Kenji Yoshimura: Central Research Institute of Electric Power Industry, Tokyo, Japan
- 2C.9 **Development of a Dynamical Model for Customer's Gas Turbine Generator in Industrial Power Systems** 514  
Masayuki Watanabe, Yuuya Ueno and Yasunori Mitani: Kyushu Institute of Technology, Kitakyushu, Japan  
Hiroyuki Iki and Yoshihisa Uriu: Seikei University, Tokyo, Japan  
Yasuhiro Urano: Idemitsu Engineering Co., Ltd., Chiba, Japan
- 2C.10 **Determination Of Proximity To Static Voltage Collapse Using CPF-GMRES Method** 520  
J.Jasni, H.Hizam, M.Z.A.Kadir, N.Mariun and S.B.M.Noor: Universiti Putra Malaysia, Malaysia

**2D****Date:**  
**Time:**  
**Venue:****Power System Protection 1****2 December 2008**  
**0900 to 1205**  
**Daffodil Seminar Room**

2D.1	<b>Transient Based Protection Using Current Transients</b> Xia Mingchao: Beijing Jiaotong University, Beijing, China Huang Yizhuang: Tsinghua University, Beijing, China	<b>526</b>
2D.2	<b>A Study on Static Voltage Collapse Proximity Indicators</b> Renuga Verayiah and Izham Zainal Abidin: Universiti Tenaga Nasional, Selangor, Malaysia	<b>531</b>
2D.3	<b>Fault Current Limiting in Distribution Systems with Distributed Generation Units by a New Dual Functional Series Compensator</b> H.R. Baghaee, M. Mirsalim, M. J. Sanjari and G.B. Gharehpetian: Amirkabir University of Technology, Tehran, Iran M. Mirsalim: St. Mary's University, San Antonio, TX, USA	<b>537</b>
2D.4	<b>Analysis of Load Flow and Short Circuit Studies of an Offshore Platform Using ERACS Software</b> K.N. Hasan, K. S. R. Rao and Z. Mokhtar: Universiti Teknologi PETRONAS, Malaysia	<b>543</b>
2D.5	<b>Performance of Restricted Earth Fault Protection Scheme in the Presence of Current Transformer Remanence</b> Kamarul Jalal Abdul Jalil, Dr. Ab Halim Abu Bakar and Wan Norliza Wan Mahadi: University of Malaya, Kuala Lumpur, Malaysia Faridah Hani Mohamed Salleh: University of Tenaga Nasional, Selangor, Malaysia	<b>549</b>
2D.6	<b>Effects of Voltage Transformers Connection Point on Measured Impedance at Relaying Point for Inter Phase Faults in Presence of TCSC</b> S. Jamali, A. Kazemi, and H. Shateri: Iran University of Science and Technology, Iran	<b>553</b>
2D.7	<b>Measured Impedance by Distance Relay in Presence of UPFC on Next Line</b> S. Jamali, A. Kazemi, and H. Shateri: Iran University of Science and Technology, Iran	<b>559</b>
2D.8	<b>Performance of Multi-Column MOVs for C Class Protection of AC Power Circuits</b> Muhammad Saufi Kamarudin and Asmarashid Ponniran: Universiti Tun Hussein Onn Malaysia, Malaysia Zulkurnain Abdul Malek: Universiti Teknologi Malaysia	<b>565</b>
2D.9	<b>A New Genetic Algorithm Method for Optimal Coordination of Overcurrent and Distance Relays Considering Various Characteristics for Overcurrent Relays</b> Reza.Mohammadi.Chabanloo, Hossein.Askarian.Abyaneh and Somayeh.Sadat.Hashemi.Kamangar: Amirkabir University of Technology, Tehran, Iran Farzad.Razavi: Tafresh University, Tafresh, Iran	<b>569</b>
2D.10	<b>Power Socket Programmable Circuit Breaker System</b> H.G.Rodney Tan, A.C. Tan, Mimi Iriana and V.H. Mok: UCSI, Malaysia	<b>574</b>
2D.11	<b>Measured Impedance by Distance Relay in Presence of Inductive Fault Current Limiter</b> H. Shateri and S. Jamali: Iran University of Science and Technology, Iran	<b>578</b>

**2E****Date:****Time:****Venue:****Inverters****2 December 2008****0900 to 1205****Jasmine Seminar Room**

2E.1	<b>Design of an FPGA-based Space Vector PWM Generator for Three-phase Voltage-Sourced Inverters</b> Woei-Luen Chen, Chun-Hao Pien and Yung-Ping Feng: Chang Gung University, Taiwan, R.O.C.	<b>584</b>
2E.2	<b>A Review on Controllers for PWM Inverters</b> S. M. Ayob, N. A. Azli and Z. Salam: Universiti Teknologi Malaysia, Malaysia	<b>589</b>
2E.3	<b>Variable High Frequency Voltage Source for an Ohmic Heating Process</b> A. Toudeshki, N. Mariun, H. Hizam, S. M. Bashi and H. Jamaludin: Universiti Putra Malaysia, Malaysia	<b>594</b>
2E.4	<b>Sugeno-type Fuzzy Logic Controller (SFLC) for a Modular Structured Multilevel Inverter (MSMI)</b> S. N. F. Mohamed, N. A. Azli, Z. Salam and S.M. Ayob: Universiti Teknologi Malaysia, Malaysia	<b>599</b>
2E.5	<b>A New Topology -Reversing Voltage (RV) - for Multi Level Inverters</b> E. Najafi, A. H. M. Yatim and A. S. Samosir: Universiti Teknologi Malaysia, Malaysia	<b>604</b>
2E.6	<b>A Switching Loss Study In SPWM IGBT Inverter</b> Ali. I. Maswood: Nanyang Technological university, Nanyang Avenue, Singapore	<b>609</b>
2E.7	<b>Novel Quasi-Parallel Resonant DC-Link Inverter with One Auxiliary Switch</b> M. R. Amini and H. Farzanehfar: Isfahan University of Technology, Isfahan, Iran	<b>614</b>
2E.8	<b>Robust Controller Design for Parallel Multi- Inverter Systems Using <math>\mu</math>-Synthesis</b> M. Jafari, Sh. Farhangi and F.R. Salmasi: University of Tehran, Tehran, Iran	<b>619</b>
2E.9	<b>Analysis and Minimization of Input Current and Voltage Ripples of Five-Phase PWM Inverters</b> P. A. Dahono, Deni, and A. Rizqiawan: Institute of Technology Bandung, Indonesia	<b>625</b>
2E.10	<b>Decoupling Voltage Controller Design with Time Response Specifications for Three-Phase DC/AC Inverter</b> Jinmok Lee and Jaeho Choi: Chungbuk National University, Cheongju, South Korea	<b>630</b>
2E.11	<b>PWM Inverter Regulation Using Single Input Fuzzy Logic Controller</b> S. M. Ayob, N. A. Azli and Z. Salam: Universiti Teknologi Malaysia, Malaysia	<b>635</b>

**2F****Power Quality 2****Date:****2 December 2008****Time:****0900 to 1205****Venue:****Orchid Seminar Room**

2F.1	<b>Electric Power System's Dynamic Voltage Stability Improvement through a Thyristor Controlled Series Compensation Strategy</b> R. M. Monteiro Pereira, Adelino J. C. Pereira and C. Machado Ferreira: ISEC, College of Engineering of Coimbra/DEE, Coimbra, Portugal ISEC, College of Engineering of Coimbra/DEE, Coimbra, Portugal: University of Porto/DEEC, Porto, Portugal	<b>640</b>
2F.2	<b>Harmonic Optimization in Multi-Level Inverters using Harmony Search Algorithm</b> B. Majidi, H. R. Baghaee, G. B. Gharehpetian, J. Milimonfared, and M. Mirsalim: Amirkabir University of Technology, Tehran, Iran and St. Mary's University, San Antonio, TX, USA	<b>646</b>
2F.3	<b>Improvements to Fault Location Analysis Based on Voltage Sag Data - Verifying the Improvements to the Fault Location Accuracy of the Prototype Tool -</b> Takeo Shibata, Toshikazu Fujita and Kenji Yoshimura: CRIEPI/ System Engineering Research Laboratory, Tokyo, Japan Hiroshi Nagashima: Kyushu Electric Power Co., Inc./ Research Laboratory, Fukuoka, Japan	<b>651</b>
2F.4	<b>Comparing the performance of various mother wavelet functions in detecting actual 3-phase voltage sags</b> M.F.Faisal and A.Mohamed: Universiti Kebangsaan Malaysia, Malaysia	<b>657</b>
2F.5	<b>Analysis of PQ Waveform for Optimum Data Transmission over IEC 61850 Communication Standards</b> Bahisham Yunus: UNITEN, Malaysia H. Li: University of Manchester, UK	<b>662</b>
2F.6	<b>Electromagnetic Interference Effect from Power Line Noise in Electrocardiograph Signal using Faraday Cage</b> Noor Amalina Zakaria, Rubita Sudirman and Mohd. Najeb Jamaluddin	<b>666</b>
2F.7	<b>Dynamic Voltage Restorer Lab Prototype</b> Agileswari K. Ramasamy and Vigna Ramachandaramurthy: University Tenaga Nasional, Malaysia Rengan Krishna Iyer: Intel, Malaysia	<b>672</b>
2F.8	<b>Power Quality Indexes for Continue and Discrete Disturbances in a Distribution Area</b> H. Siahkali: Islamic Azad University, South Tehran Branch, Tehran, IRAN	<b>678</b>
2F.9	<b>Investigation on the Effect of Shunt Capacitor and Shunt Filter on Harmonic in Distribution System</b> I.Daut, R.Chan Bahaudin, C.M.Hadzer, S. Hardi, N Hashim, I.Nisja: University Malaysia Perlis (UniMAP), Malaysia	<b>684</b>
2F.10	<b>Power Quality and Electromagnetic Compatibility -The 'Simple or NOT so Simple' Ubiquitous Power Supply Input Stage -</b> Robert T Kennedy and Ismail Daut: Universiti Malaysia Perlis (UniMAP), Malaysia	<b>689</b>
2F.11	<b>Numerical Electromagnetic Analysis of GSM Tower under the Influence of Lightning Overvoltage using Method of Moments</b> Mohammad Saiful Islam Hossaini and Md. Osman Goni: Khulna University of Engineering & Technology, Khulna, Bangladesh	<b>695</b>

### **3A**

**Date:**  
**Time:**  
**Venue:**

### **Electrical Machines**

**2 December 2008**  
**1400 to 1705**  
**Angsana Seminar Room**

3A.1	<b>A PLC-based Self-tuning PI-Fuzzy Controller for Linear and Non-linear Drives Control</b> Muhammad Arrofiq, Nordin Saad: Universiti Teknologi PETRONAS, Malaysia	<b>701</b>
3A.2	<b>Sensorless Predictive Torque Control by means of Sliding Mode Observer</b> S. Alireza Davari and Davood Arab Khaburi: Iran University of Science and Technology , Tehran, Iran	<b>707</b>
3A.3	<b>Adaptive Deadbeat Current Controllers for AC Induction Motor Control</b> Petr Blaha and Pavel Vaclavek: Brno University of Technology, Brno, Czech Republic	<b>712</b>
3A.4	<b>PWM Technique to Control Speed of Induction Motor using Matlab/xPC Target Box</b> Mohd Fakhizan bin Romlie, Mohammad Fadhil Pesol and Khairul Nisak Md Hasan: Universiti Teknologi PETRONAS, Malaysia	<b>718</b>
3A.5	<b>A Simple Overmodulation Strategy in DTCHysterisis Based Induction Machine Drives</b> A. Jidin, N.R.N. Idris and A.H.M. Yatim: Universiti Teknologi Malaysia, Malaysia	<b>722</b>
3A.6	<b>Evaluating the Potential of Solenoid Motion System for Electric Vehicle – Challenging the Conventional Usage of Electric Motor</b> Syed Zainal Abidin Syed Kamarul Bahrin, Noor Miza Muhamad Razali, Thahirah Syed Jalal and Ungku Anisa Ungku Amirulddin: Universiti Tenaga Nasional, Selangor, Malaysia	<b>726</b>
3A.7	<b>Performance Analysis of an Electric Vehicle in Faulty Inverter Mode</b> M. Sarardar Zadeh, B. Asaei and M.Hamzeh: University of Tehran, Tehran, Iran	<b>731</b>
3A.8	<b>A Quick Dynamic Torque Control for Direct Torque Control Hysterisis-Based Induction Machines</b> A. Jidin, N.R.N. Idris and A.H.M. Yatim: Universiti Teknologi Malaysia, Malaysia	<b>737</b>
3A.9	<b>Practical Current Control Techniques for Torque Ripple Minimization in SR Motors</b> Gobbi. R and K. Ramar: Multimedia University, Malaysia	<b>743</b>
3A.10	<b>Bearing Fault Detection in Induction Motor Using Pattern Recognition Techniques</b> Jafar Zarei and Javad Poshtan: Iran University of Science and Technology Majid Poshtan: The Petroleum Institute of Abu Dhabi	<b>749</b>



### **3B**

### **Power Electronics Converters 1**

**Date:** 2 December 2008  
**Time:** 1400 to 1705  
**Venue:** Hibiscus Seminar Room

- |       |   |     |
|-------|---|-----|
| 3B.1  | <b>Matrix converter with a new control strategy</b><br>Dipl.-Ing. M. Pfeifer and Prof. Dr.-Ing. G. Schröder : University of Siegen  | 754 |
| 3B.2  | <b>Studies on Control Electronics Implementation of Single-Phase Matrix Converter Operating as ACDC Converter with Active Power Filter</b><br>R. Baharom, M. K. Hamzah, A. Saparon and I. R. Ibrahim: Universiti Teknologi MARA, Malaysia                       | 758 |
| 3B.3  | <b>Single Phase Matrix Converter for Inverter Operation Controlled Using Xilinx FPGA</b><br>S.Z. Mohammad Noor, M.K.Hamzah and A.Saparon: Universiti Teknologi Mara, Malaysia.  | 764 |
| 3B.4  | <b>Closed-Loop Control of AC/DC Three-Phase Current Injection Series Resonant Converter</b><br>Mohammad Nawawi Seroji: Universiti Teknologi MARA, Malaysia<br>Andrew J. Forsyth: The University of Manchester, Manchester, United Kingdom                       | 770 |
| 3B.5  | <b>Non-Symmetrical SHE-PWM Technique for Five-Level Cascaded Converter with Non-Equal DC Sources</b><br>Mohamed S. A. Dahidah: The University of Nottingham, Malaysia Campus, MALAYSIA<br>Vassilios G. Agelidis: The University of Sydney, NSW, 2006, AUSTRALIA | 775 |
| 3B.6  | <b>Space Vector Modulated and Vector Controlled Three-Level Four-Wire Unidirectional AC-DC-AC Converter</b><br>Jarno Alahuhtala and Heikki Tuusa: Tampere University of Technology, Tampere, Finland  | 781 |
| 3B.7  | <b>A New Vector Frequency Modulation for Power Conversion Circuits</b><br>Akio Takano: Numazu National College of Technology, Numazu, Japan   | 787 |
| 3B.8  | <b>New Switching Method for Sheppard-Taylor PFC Converter</b><br>M.Rezanejad, M.Dargahi, S.Lesan, A.Ranjbar Noee and M.Karami: Noshirvani Technical University of Babol, Babol, Iran  | 793 |
| 3B.9  | <b>Tuning of Control Loops for Grid Connected Voltage Source Converters</b><br>Jon Are Suul, Marta Molinas, Lars Norum and Tore Undeland: Norwegian University of Science and Technology, Trondheim, Norway   | 797 |
| 3B.10 | <b>Overview of Modulation Techniques for the Four-Switch Converter Topology</b><br>M. Monfared and H. Rastegar: Amirkabir University of Technology, Tehran, Iran<br>H. M. Kojabadi: Sahand University of Technology, Tabriz, Iran                               | 803 |
| 3B.11 | <b>A Development of Fuzzy Control of Hybrid Energy System using Ultracapacitor</b><br>A.Z. Annuar: Universiti Malaysia Terengganu (UMT), Malaysia<br>A.H.M. Yatim: Universiti Teknologi Malaysia, Malaysia  | 808 |

### 3C

**Date:**  
**Time:**  
**Venue:**

### Modeling and simulation

**2 December 2008**  
**1400 to 1705**  
**Acadia Seminar Room**

- 3C.1 **Dynamic Modeling and Simulation of Solid Oxide Fuel Cell System** 813  
A.A.Salam, M.A.Hannan and A.Mohamed: Universiti Kebangsaan Malaysia, Malaysia.
- 3C.2 **Load Modeling Using the Ornstein-Uhlenbeck Process** 819  
Magnus Perninge, Mikael Amelin and Valerijs Knazkins: Electric Power Systems, Royal Institute of Technology (KTH), Stockholm, Sweden
- 3C.3 **Advanced Laboratory Scale Model of High Phase Conversion Power Transmission Line** 822  
Hussein Ahmad: Universiti Teknologi Malaysia, Malaysia  
Jambak, M. I: Universitas Sriwijaya, Indonesia
- 3C.4 **Numerical Simulation for Hypersonic Vehicle onboard Magneto hydrodynamic Power Generation** 828  
Nob. Harada and Takashi Kikuchi: Nagaoka University of Technology, Japan  
T. Lineberry: LyTec, LLC. President, Tullahoma TN 37388, U.S.A.
- 3C.5 **A Modeling of Self Excited Induction Generators Driven by Compressed Air Energy Based on Field Oriented Control Principle** 834  
Varin Vongmanee and Veerapol Monyakul: King Mongkut's University of Technology Thonburi 91 Prachauthit Rd. Bangmod, Tungkru, Bangkok, Thailand
- 3C.6 **Hierarchical Approach In Steam Network Modelling** 839  
R. Arghandeh Jouneghani: University of Manchester & K.N.Toosi University of Technology MSc joint Program, Tehran, Iran  
M. Amidpour: K.N.Toosi University of Technology, Energy Systems Group, Tehran, Iran  
A.Ghaffari: K.N.Toosi University of Technology, Tehran, Iran
- 3C.7 **A New Method for Small Signal Modeling of UPFC** 844  
H. Kazemi Karegar: Shahid Beheshti University, Tehran, Iran  
S. Golmohamadzadeh: Zanjan University, Zanjan, Iran
- 3C.8 **Modeling of Controller for Voltage Sourced Converter based HVDC Transmission System** 849  
Ahmed Mahjoub and Ravindra Mukerjee: Universiti Teknologi PETRONAS, Malaysia
- 3C.9 **PSiM Based Electric Modeling of Supercapacitors for Line Voltage Regulation of Electric Train System** 855  
Sejin Noh and Jaeho Choi: Chungbuk National University, Chungju, S. Korea  
Hyung-Cheol Kim and Eun-Kyu Lee: Wootin Industrial Systems Co. Ltd., Cheongwon, S. Korea

### 3D

**Date:**  
**Time:**  
**Venue:**

### Computer and AI in Power System 1

**2 December 2008**  
**1400 to 1705**  
**Daffodil Seminar Room**

- 3D.1 **Generation Scheduling Methodology for Thermal Units with Wind Energy System Considering Unexpected Load Deviation** 860  
Tomonobu Senjyu, Shantanu Chakraborty, Hirofumi Toyama and Naomitsu Urasaki: University of the Ryukyus, Japan  
Ahmed Yousuf Saber: King Abdulaziz University, Saudi Arabia  
Toshihisa Funabashi: Meidensha Corporation, Japan
- 3D.2 **Thermal Unit Commitment Strategy with Solar and Wind Energy Systems Using Genetic Algorithm Operated Particle Swarm Optimization** 866  
Tomonobu Senjyu, Shantanu Chakraborty, Hirofumi Toyama and Atsushi Yona: University of the Ryukyus, Japan  
Ahmed Yousuf Saber: King Abdulaziz University, Saudi Arabia  
Toshihisa Funabashi: Meidensha Corporation, Japan
- 3D.3 **Thermal Generation Scheduling Strategy Using Binary Clustered Particle Swarm Optimization Algorithm** 872  
Tomonobu Senjyu, Shantanu Chakraborty, Hirofumi Toyama and Atsushi Yona: University of the Ryukyus, Japan  
Ahmed Yousuf Saber: King Abdulaziz University, Saudi Arabia  
Toshihisa Funabashi: Meidensha Corporation, Japan
- 3D.4 **Using Support Vector Machines for Determining Voltage Unstable Areas in Power Systems** 878  
Muhammad Nizam, Azah Mohamed, Majid al-Dabbagh and Aini Hussain: Universiti Kebangsaan Malaysia, Malaysia
- 3D.5 **A Fuzzy Based Control Method for Isolated Power Utility Connected PV-diesel Hybrid System to Reduce Frequency Deviation** 884  
Manoj Datta, Tomonobu Senjyu and Atsushi Yona: University of the Ryukyus, Okinawa, Japan  
Toshihisa Funabashi: Meidensha Corporation, Tokyo, Japan  
Chul-Hwan Kim: Sungkyunkwan University, Suwon, Korea
- 3D.6 **A Novel Adaptive Power Systems Frequency Estimation Algorithm Based on Complex Artificial Neural Network** 890  
Sadinezhad: The University of Sydney, School of EIE, Sydney, Australia  
M. Joorabian and A. Nowbakht: Shahid Chamran University, Ahvaz, Iran
- 3D.7 **A New Adaptive Hybrid Neural Network and Fuzzy Logic Based Fault Classification Approach for Transmission Lines Protection** 895  
Sadinezhad: The University of Sydney, school of EIE, Sydney, Australia  
M. Joorabian: Shahid Chamran University of Ahavz, Ahvaz, Iran
- 3D.8 **Taguchi's Method for Optimized Neural Network Based Autoreclosure in Extra High Voltage Lines** 901  
Desta Zahlay F. and K.S. Rama Rao: Universiti Teknologi PETRONAS, Malaysia
- 3D.9 **Non-Technical Loss Analysis for Detection of Electricity Theft using Support Vector Machines** 907  
J. Nagi, A. M. Mohammad, K. S. Yap, S. K. Tiong and S. K. Ahmed
- 3D.10 **A Comparison amongst Sub-Optimal Ordering Schemes for Power Systems Accompanied with a GA-based Optimal Ordering Method** 913  
M. Heydari Araghi: The Univ. of Western Ontario, Thompson Eng. Building, London, Ontario, Canada  
H. Yazdanpanahi, M. Abedi and G. B. Gharehpetian: Amirkabir Univ. of Tech., 424 Hafez Ave. Tehran, Iran



## Special Session on Microgrid and Power Electronics Utility Application

**Date:** 2 December 2008  
**Time:** 1400 to 1705  
**Venue:** Jasmine Seminar Room

- SS.1 **Coordinated Control of Battery Energy Storage System and Diesel Generator for Isolated Power System Stabilization** 925  
Eitaro Omine, Tomonobu Senjyu, Endusa Billy Muhando, Atsushi Yona and Hideomi Sekin: University of the Ryukyus, Nakagami, Japan  
Toshihisa Funabashi: Meidensha Corporation, Chuo-ku, Japan  
Ahmed Yousuf Saber: Missouri University of Science and Technology, Missouri, USA
- SS.2 **A Novel Self-Start Circuit and CBS for Engine- Generator System** 931  
Jin-Woo Ahn and Dong-Hee Lee: Kyungsoong University, Busan, Korea  
Dong-Hun Kim: Kyungpook National University, Korea
- SS.3 **Sensorless Control of PM Synchronous Generators for Micro Wind Turbines** 936  
Nguyen Thanh Hai, Suk-Ho Jang, Hong-Geuk Park, and Dong-Choon Lee: Yeungnam University, Korea
- SS.4 **Power Quality Control Center for the Microgrid System** 942  
Y.H. Chung, H.J. Kim, K.S. Kim and J.W. Choe: Y.H. Chung, H.J. Kim, K.S. Kim, J.W. Choe  
Jaeho Choi: ChungBuk National University, CheongJu, Korea
- SS.5 **A Control Strategy for the Grid-connected PV System Using a Z-Source Inverter** 948  
Jong-Hyoung Park, Heung-Geun Kim, Hyun-Jin Shin and Min-Hun chi: Kyungpook National University, Daegu, Republic of Korea  
Tae-Won Chun: University of Ulsan, Ulsan, Republic of Korea  
Eui-Cheol Nho: PuKyong National University, Busan, Republic of Korea
- SS.6 **High Performance Wind Power Generation System connected to DC Microgrid** 952  
Toshimitsu Morizane, Noriyuki Kimura, Tomoyuki Hamada and Katsunori Taniguchi: Osaka Institute of Technology, Osaka, Japan

**3E****Energy and Instrumentation****Date:****2 December 2008****Time:****1400 to 1705****Venue:****Jasmine Seminar Room**

3E.1	<b>Optimal Design of Measurement-Type Current Transformer Using Genetic Algorithm</b> Vahid Rashtchi, Arash Shabani and Amir Bagheri: Zanjan University, Zanjan, Iran	<b>958</b>
3E.2	<b>Tenaga Nasional Berhad Wide Area Measurement System Based Applications</b> Sheikh Kamar Bin Sheikh Abdullah: TNB Research Sdn. Bhd., Malaysia Nik Sofizan Bin Nik Yusuf: TNB Transmission, Malaysia	<b>962</b>
3E.3	<b>Energy Balance Analysis of Small Satellite in Low Earth Orbit (LEO)</b> Sung-Soo Jang and Jaeho Choi: Chungbuk National University, Cheongju, S. Korea	<b>967</b>
3E.4	<b>State-of-Charge Estimation for Lead-Acid Batteries Based on Dynamic Open-Circuit Voltage</b> Kong-Soon Ng, Chin-Sien Moo: National Sun Yat-Sen University, Kaohsiung City, Taiwan Yi-Ping Chen: Industrial Technology Research Institute, HsinChu, Taiwan Yao-Ching Hsieh: National Dong Hwa University, HuaLien, Taiwan	<b>972</b>
3E.5	<b>Power Compensator for High Power Fluctuating Loads with a Supercapacitor Bank Energy Storage</b> Antti Virtanen and Heikki Tuusa: Tampere University of Technology, Tampere, Finland	<b>977</b>

**3F****Power Market and Deregulation****Date:****2 December 2008****Time:****1400 to 1705****Venue:****Orchid Seminar Room**

- 3F.1 **Enhancing Deregulated Distribution Network Reliability for Minimizing Penalty Cost Based on Reconfiguration Using BPSO** 983  
H. Hosseini, S. Jalilzadeh, V. Nabaei, G. R. Zareie Govar and M. Mahdavi: Zanjan University, Zanjan, Iran
- 3F.2 **Transmission Loss Allocation in Deregulated Power System via Superposition and Proportional Tree Methods** 988  
Mohd Wazir Mustafa: Universiti Teknologi Malaysia, Malaysia  
Mohd Herwan Sulaiman: Universiti Malaysia Perlis, Malaysia
- 3F.3 **Allocation of Loss Cost by Optimal and Proportional Tracing Methods** 994  
Nahid Aslani Amoli and Shahram Jadid: Iran University of Science and Technology (IUST), Tehran, Iran
- 3F.4 **Next-Day Peak Electricity Price Forecasting Using NN Based on Rough Sets Theory** 1000  
Hirofumi Toyama, Tomonobu Senjyu, Shantanu Chakraborty and Atsushi Yona: University of the Ryukyus, Nakagami, Japan  
Toshihisa Funabashi: Meidensha Corporation, Chuo-ku, Japan  
Ahmed Yousuf Saber: King Abdulaziz University, Jeddah, Kingdom of Saudi Arabia
- 3F.5 **Reactive Power Procurement Scheme in Competitive Power Markets** 1006  
Fuqiang Zhang, H.W. Ngan, C.W. Yu, C.Y. Chung and K.P. Wong: The Hong Kong Polytechnic University, Hong Kong  
Fushuan Wen: Zhejiang University, China
- 3F.6 **A Risk-Based Approach for Provision of Spinning Reserve by Means of Emergency Demand Response Program** 1011  
Yousefi, E. Shayesteh and M. Parsa Moghaddam: Tarbiat Modares University, Tehran, Iran  
F. Daneshvar: Hormozgan Electrical Distribution Company (HEDC), Bandarabbas, Iran
- 3F.7 **Redistribution of Transmission Loss Based on Z-bus Method** 1016  
Wen-Chen Chu and Yi-Ping Chen: Tatung Institute of Technology, Taipei, Taiwan
- 3F.8 **Optimal Unit Commitment Using Equivalent Linear Minimum Up and Down Time Constraints** 1021  
Nadia Zendejdel and Ali Karimpour: Ferdowsi University, Mashhad, Iran and East Electrical Energy Economics Research Group, Mashhad, Iran  
Majid Oloomi: Shahrood University of Technology, Shahrood, Iran and East Electrical Energy Economics Research Group, Mashhad, Iran
- 3F.9 **Improving Zonal Congestion Relief Management Using Economical & Technical Factors of the Demand Side** 1027  
Mohamad H. Moradi, Somayeh. Dehghan: Bu Ali Sina University, Hamadan, Iran  
Hamid R. Faridi: National Iranian Oil Company, Tehran, Iran
- 3F.10 **Congestion Cost Allocation in a Pool-Based Electricity Market** 1033  
M. P. Abdullah, M. Y. Hassan and F. Hussin: Universiti Teknologi Malaysia, Malaysia
- 3F.11 **Electricity Market Models in Restructured Electricity Supply Industry** 1038  
M. Y. Hassan, M. P. Abdullah, A. S. Arifin, F. Hussin and M. S. Majid: Universiti Teknologi Malaysia, Malaysia

**4A****Electrical Machine and Drives 2**

**Date:** 3 December 2008  
**Time:** 0900 to 1205  
**Venue:** Angsana Seminar Room

- 4A.1 **Simulink Implementation of Digital Cascade Control DC Motor Model - A didactic approach** 1043  
M.Nizam.Kamarudin and Sahazati Md.Rozali: Universiti Teknikal M'sia Melaka (UTeM), Malaysia
- 4A.2 **Development of Acoustic Emission Diagnostic System for Condition Monitoring of Rotating Machines** 1049  
Mohammed A. A. Elmaleeh and N. Saad: Universiti Teknologi PETRONAS, MALAYSIA
- 4A.3 **A Practical Study on the Dynamic Performance of a Controller for an Electromagnetic Levitation System** 1055  
S. Banerjee: NIT, Durgapur, India  
R. Bhaduri: BCET, Durgapur, India  
D. Prasad: Emerson Network Power Private Ltd./R&D, Thane (W), Maharashtra, India
- 4A.4 **Better Performance Pulsed Launcher System by Adjusting Projectile Initial Position** 1060  
M. Rezal and Hon K. W.: Kuala Lumpur Infrastructure University College, Malaysia  
S. J. Iqbal: Universiti Putra Malaysia, Malaysia
- 4A.5 **Permanent Magnet Brushless Machines with Minimum Difference in Slot Number and Pole Number** 1064  
Mohd Saufi Ahmad, Nurul Anwar Abd Manap and Dahaman Ishak: Universiti Sains Malaysia, Malaysia
- 4A.6 **Non-linear Modeling of Transformer Using Hammerstein Method** 1070  
H.Yazdanpanahi, M.A.Hejazi and G.B.Gharehpetian: Amirkabir University of Technology, Tehran, Iran
- 4A.7 **The Analysis on Effect of Thrust Constant, Spring Constant, Electrical Time Constant, Mechanical Time Constant to Oscillation Displacement of Slot-Less Linear Oscillatory Actuator** 1076  
M. Norhisam, R. N. Firdaus, N. Mariun and I. Aris: University Putra Malaysia, Malaysia  
F. Azhar: Universiti Teknikal Malaysia Melaka, Malaysia  
Abdul Razak J.: Malaysian Palm Oil Board, Bandar Baru Bangi, Malaysia
- 4A.8 **Design and Analysis of a Single Phase Slot-less Permanent Magnet Generator** 1082  
M. Norhisam, M. Norafiza, M. Syafiq and I. Aris: Universiti Putra Malaysia, Malaysia  
Abdul Razak J.: Malaysian Palm Oil Board Bandar Baru Bangi, Malaysia
- 4A.9 **Rectangular Current Commutation and Open-Loop Control for Starting of a Free-Piston Linear Engine-Generator** 1086  
Saiful A. Zulkifli, Mohd N. Karsiti and Abd. Rashid Abd. Aziz: Universiti Teknologi PETRONAS, Malaysia
- 4A.10 **Performance Evaluation of Disk MHD Accelerator with Nozzle and Diffuser** 1092  
Shinji Takeshita and Nob. Harada: Nagaoka University of Technology, Nagaoka, Japan  
Chainarong Buttapeng: University of the Thai Chamber of Commerce, School of Electrical and Energy Engineering, Bangkok, Thailand
- 4A.11 **Power Quality Behavior of Single Phase Fed Adjustable Speed Drive Supplied from Grid of PV Generation** 1098  
Makbul Anwari and M. Imran Hamid: Universiti Teknologi Malaysia, Malaysia  
Taufik: Cal Poly State University, San Luis Obispo, CA 93407, USA



**4B****Power Electronics Converters 2****Date:****3 December 2008****Time:****0900 to 1205****Venue:****Hibiscus Seminar Room**

- 4B.1 **A New Controlling Method Based on Peak Current Mode (PCM) for PFC** 1103  
E.Najafi and A.Vahedi: Iran University of Science and Technology, Iran  
A. Mahanfar: Simon Fraser University, BC, Canada
- 4B.2 **Comparative Study of CoolMOS and MOSFET in High Frequency Circuit Design** 1108  
K.N. Hassan, N.A. Jelani, S.S. Sari'at and N.Z. Yahaya: , Universiti Teknologi PETRONAS, Malaysia
- 4B.3 **Single-Phase Shunt Active Power Filter Using Single-switch Incorporating Boost Circuit** 1112  
N.R. Hamzah, M.K.Hamzah, A.S. Abu Hasim and N.F.A. Abdul Rahman: Universiti Teknologi Mara, Malaysia and Universiti Pertahanan Nasional Malaysia, Malaysia
- 4B.4 **Single-Phase Single-Switch Boost PFC Regulator with Low Total Harmonic Distortion and Feedforward Input Voltage** 1118  
H. S. Athab: Multimedia University, Malaysia
- 4B.5 **FPGA Design of Single-phase Matrix Converter Operating as a Frequency Changer** 1124  
M.K. Hamzah, A. Saparon and M.S Yunos: Universiti Teknologi MARA, Malaysia  
Z. Idris: Universiti Industri Selangor, Malaysia
- 4B.6 **Balanced Driving System for Multiple Cold-Cathode Fluorescent Lamps** 1130  
Hau-Chen Yen and Zi-Jiann Huang: Fortune Institute of Technology, Kaohsiung, Taiwan  
Yao-Ching Hsieh: National Dong Hwa University, Hualien, Taiwan  
Hung-Liang Cheng: I-Shou University, Kaohsiung, Taiwan
- 4B.7 **A Novel Single-Stage High-Power-Factor High-Efficiency AC-to-DC Resonant Converter** 1135  
Hung-Liang Cheng: I-Shou Univ., Kaohsiung County, Taiwan  
Kuo-Hsing Lee, Yan-Cun Li and Chin-Sien Moo: Natl. Sun Yat-sen Univ., Kaohsiung, Taiwan
- 4B.8 **Boost Rectifier Using Single-Phase Matrix Converter with Bipolar Output** 1141  
R. Baharom, M. K. Hamzah, N.R. Hamzah and L. Mohd Kasim: Universiti Teknologi MARA, Malaysia
- 4B.9 **An Extended Dynamic Matrix Control Design for Quasi-Resonant Converters** 1147  
F. Tahami and M. Ebad: Sharif University of Technology, Tehran, Iran
- 4B.10 **Improvement of Input Side Currents of a Three Phase Rectifier Using Cúk Converter in Discontinuous-Capacitor-Voltage Mode Operation** 1152  
Md. Raju Ahmed and Ruma: Dhaka University of Engineering & Technology, Gazipur, Bangladesh  
M. J. Alam: Bangladesh University of Engineering & Technology, Dhaka, Bangladesh
- 4B.11 **A Predictive Control Strategy for the Sheppard-Taylor Based PFC Rectifier** 1156  
M.R. Abedi, Ali A. Sahari, and F. Tahami: Sharif University of Technology, Tehran, Iran

## 4C

### Computer and AI in Power System

Date:

3 December 2008

Time:

0900 to 1205

Venue:

Acadia Seminar Room

- 4C.1 **A Novel Approach for a Z-Matrix Building Process Using Genetic Algorithm** 1161  
A. H. Ranjbar, H. Omranpour, M. Abedi and G.B. Gharehpetian: Amirkabir University of Technology, Tehran, Iran
- 4C.2 **Learning the Role of Regulator in Emerging Multi-Energy Market: A Simulation Approach with Agents** 1166  
Naing Win Oo: Curtin University of Technology, Malaysia
- 4C.3 **Static Security Assessment Using Artificial Neural Network** 1172  
I. S. Saeh and A. Khairuddin: University Technology Malaysia, Malaysia
- 4C.4 **A Comprehensive Power Restoration Approach Using Rule-Based Method for 11kV Distribution Network** 1179  
Abd Rahman Khalid, Sharifah Mumtazah Syed Ahmad and Asma Shakil: Universiti Tenaga nasional (UNITEN), Malaysia  
Nawar Nik Pa: Universiti Putra Malaysia (UPM), Malaysia  
Roslin Mohd Shafie: Tenaga Nasional Berhad Research (TNBR), Malaysia
- 4C.5 **A Solution to Unit Commitment Problem Using Hybrid Ant System/Priority List Method** 1183  
Songsak Chusanapiputt and Sujate Jantarang: Mahanakorn University of Technology, Bangkok, Thailand  
Dulyatat Nualhong: Electricity Generating Authority of Thailand, Bangkok, Thailand and Mahanakorn University of Technology, Bangkok, Thailand  
Sukumvit Phoomvuthisarn: Chulalongkorn University, Bangkok, Thailand
- 4C.6 **Zonal Partitioning of Deregulated Power Systems using Fuzzy Monte Carlo Simulation** 1189  
Mina Sajjadi and Mehdi Raoofat: Shiraz University, Shiraz, Iran
- 4C.7 **An Artificial Neural-Net Based Method for Predicting Distribution Transformer's Total Harmonic Distortions** 1194  
Turhan Türker: Siemens Turkey, Energy Sector Power Distribution Division, Istanbul, Turkey  
Nuran Yörükeren, Mehlika Şengül and Bora Alboyacı: Kocaeli University, Kocaeli, Turkey
- 4C.8 **Application of SARSA Learning Algorithm for Reactive Power Control in Power System** 1198  
M. R. Tousi, S. H. Hosseinian, A. H. Jadidinejad and M. B. Menhaj: Amirkabir University of Technology, Tehran, Iran
- 4C.9 **Coherency Approach by Hybrid PSO, K-Means Clustering Method in Power System** 1203  
Moez Davodi, HamidReza Modares, Ehsan Reihani, Mehdi Davodi and Ali Sarikhani: Shahrood university of technology, Iran
- 4C.10 **A Comparison Study on Particle Swarm and Evolutionary Particle Swarm Optimization Using Capacitor Placement Problem** 1208  
Naing Win Oo: Curtin University of Technology, Malaysia
- 4C.11 **Evaluation of a Generic Virtual Power Plant Framework Using Service Oriented Architecture** 1212  
Peter B. Andersen, Bjarne Poulsen, Morten Decker, Chresten Træholt and Jacob Østergaard: Technical University of Denmark, Kgs. Lyngby, Denmark

**4D****Energy and Power Optimisation****Date:****3 December 2008****Time:****0900 to 1205****Venue:****Daffodil Seminar Room**

- 4D.1 **Secondary Voltage Control: Enhancing Power System Voltage Profile** 1218  
Salah I. Al-Majed: Saudi Aramco, Dhahran, Saudi Arabia
- 4D.2 **Multipurpose Reconfiguration of Deregulated Distribution Networks Using BGA** 1222  
S. Jalilzadeh, H. Hosseini, V. Nabaei, G. R. Zareie Govar and M. Zandi: Zanjan University, Zanjan, Iran
- 4D.3 **Fuzzy Mid Term Unit Commitment Considering Large Scale Wind Farms** 1227  
H. Siahkali: Islamic Azad University, South Tehran Branch, Tehran, IRAN
- 4D.4 **A Chance-Constrained Programming based Approach to Optimal Hydro Energy Allocation** 1233  
Guozhong Liu and Fushuan Wen: South China University of Technology, Guangzhou, China
- 4D.5 **Optimal Control of Voltage in Distribution Systems by Voltage Reference Management** 1239  
Shohei Toma, Tomonobu Senjyu, Atsushi Yona and Hideomi Sekine: University of the Ryukyus, Nakagami, Japan  
Toshihisa Funabashi: Meidensha Corporation, Chuo-ku, Japan  
Chul-Hwan Kim: Sungkyunkwan University, Swon City, Korea
- 4D.6 **Power Plant Optimization in a Regulated Environment Electricity Supply Industry: A Least Cost Generation Approach** 1245  
Hema Selanduray: Malakoff Corporation Berhad, Kuala Lumpur, Malaysia  
Mohd Hariffin Boosroh: Universiti Tenaga Nasional, Selangor, Malaysia
- 4D.7 **An Improved Integer Coded Genetic Algorithm for Security Constrained Unit Commitment Problem** 1251  
S. Golestani, M. Raoofat and E. farjah: Shiraz University, Iran
- 4D.8 **State of art on load monitoring methods** 1256  
Hala NAJMEDDINE, Khalil EL KHAMLI CHI DRISSI, Christophe PASQUIER, Claire FAURE and Kamal KERROUM: Université Blaise Pascal, Clermont-Ferrand II, 24 avenue des Landais, 63177 Aubière Cedex, France  
Alioune DIOP: EDF R&D, 1 Avenue du Général de Gaulle, 92141 Clamart Cedex, France  
Thierry JOUANNET and Michel MICHOU: LANDIS+GYR, 30 Avenue Prés Auriol, 03100 Montluçon, France
- 4D.9 **Value of Combining Hydrogen Production with Wind Power in Short-Term Electricity Markets** 1259  
Christopher J. Greiner and M. Korpås: Trondheim, Norway  
T. Gjengedal: Statkraft, Oslo, Norway
- 4D.10 **Comparison of Distribution Transformer Losses and Capacity under Linear and Harmonic Loads** 1265  
S.B.Sadati, B.Darvishi and H.yousefi: Mazandarn Electric Power Distribution Company, Iran  
A.Tahani and M.Dargahi: Noshirvani Technical University of Babol, Iran
- 4D.11 **Multi-Agent Ant System for Redundancy Allocation Problem of Multi States Power System** 1270  
O. Bendjeghaba and D. Ouahdi: LREEI, University of Boumerdes, ALGERIA

## **4E Power Market and Deregulation 2**

**Date:** 3 December 2008  
**Time:** 0900 to 1205  
**Venue:** Jasmine Seminar Room

- 4E.1 **A Heuristic Trade off Model for Integration of Distributed Generations in Deregulated Power Systems Considering Technical, Economical and Environmental Issues** 1275  
Arsalan Hekmati, Mehdi Bagheri and Ali Abbaspour Tehrani: Sharif University of Technology, Tehran, Iran  
Reza Nasiri: Khaje Nasireddin Tousi, Tehran, Iran
- 4E.2 **Determination of Mean and Variance of LMP Using Probabilistic DCOPF and T-PEM** 1280  
M. Davari, F. Toorani, H. Nafisi, M. Abedi, and G. B. Gharehpetian: Amirkabir University of Technology, Tehran, Iran
- 4E.3 **Comprehensive model for simultaneous pricing of active and reactive power based on marginal cost theory** 1284  
M. Aghazadeh Tabrizi and M. E. Hamedani Golshan: Isfahan University of Technology, Isfahan, Iran
- 4E.4 **Determination of the optimal incentives and amount of load reduction for a retailer to maximize profits considering Demand Response Programs** 1290  
KIM, Dong-Hyun KIM, Dong-Min and KIM, Jin-O: Hanyang University, Seoul, Korea
- 4E.5 **Determination of New Transmission Congestion Charge Allocation Approach for Deregulated Power Systems by Using Network Equivalent** 1296  
Hossein Zeynal and Mohd Wazir Mustafa: Universiti Teknologi Malaysia, Malaysia
- 4E.6 **Electricity Price Forecasting Using a Clustering Approach** 1302  
Kh. Sokhanvar and A. Karimpour and N. Pariz: Ferdowsi University of Mashhad, Mashhad, Iran
- 4E.7 **A New Method for Real Power Transfer Allocation Using Modified Nodal Equations** 1306  
M.W. Mustafa, S.N. Khalid, H. Shareef and A. Khairuddin: Universiti Teknologi Malaysia, Malaysia
- 4E.8 **Transmission Network Loss Allocation via Equivalent Bilateral Exchanges Principle and Genetic Algorithm** 1311  
Sanaz Nouri, and Shahram Jadid: Iran University of Science & Technology, Tehran, Iran
- 4E.9 **Modeling Dynamic Generation Companies' Bidding Strategies** 1317  
O. Estrada-Cruz, G. Gutierrez-Alcaraz and H. Tovar-Hernández: Instituto Tecnológico de Morelia, Morelia, Mexico
- 4E.10 **Market Oriented Reactive Power Expansion Planning using Locational Marginal Price** 1323  
Mohammad Esmali Falak and Majid Oloomi Buygi: Shahrood University of Technology, Shahrood, Iran and East Electrical Energy Economics Research Group, Mashhad, Iran  
Ali Karimpour: Ferdowsi University, Mashhad, Iran and East Electrical Energy Economics Research Group, Mashhad, Iran

**4F****Power Electronics in Power System****Date:****3 December 2008****Time:****0900 to 1205****Venue:****Orchid Seminar Room**

4F.1	<b>Design of Power Oscillation Damping Controller for SVC Device</b> M.W. Mustafa and Nuraddeen Magaji: Universiti Teknologi Malaysia, Malaysia	<b>1329</b>
4F.2	<b>Optimal Location of Static VAR Compensator (SVC) Based on Small Signal Stability of Power System</b> Mahmood Joorabian, Ne'matollah Fasih Ramandi and Mazdak Ebadi: Shahid Chamran University, Iran	<b>1333</b>
4F.3	<b>Optimal Location of FACTS devices for damping oscillations using Residue Factor</b> Nuraddeen Magaji and M.W. Mustafa: Universiti Teknologi Malaysia, Malaysia	<b>1339</b>
4F.4	<b>Sensitivity Analysis of TRV in TCSC Compensated Transmission Lines during Fault Clearing by Line CB</b> A. Parvizi, M. Rostami and A. Majzoob Ghadiri: Engineering Faculty of Shahed University, Tehran, Iran	<b>1345</b>
4F.5	<b>Stability Improvement of Centurion Electric Power Network using FACTS Controllers</b> Y. Galu, J.L. Munda and AA Jimoh: Graduate School of Electrical & Electronics Engineering Tshwane University of Technology, Pretoria, 0001, South Africa	<b>1350</b>
4F.6	<b>A Small Scale Static VAR Compensator for Laboratory Experiment</b> Taufik and Bryan Paet: California Polytechnic State University, San Luis Obispo, USA	<b>1354</b>
4F.7	<b>Effect of Interline Power Flow Controller (IPFC) on Interconnected Power Systems Adequacy</b> Farrokh Aminifar, Mahmud Fotuhi-Firuzabad, and Amin Khodaei: Sharif University of Technology, Tehran, Iran Reza Nasiri: Khaje Nasirreddin Tousi University of Technology, Tehran, Iran	<b>1358</b>
4F.8	<b>Overview of an Extended Custom Power Park</b> M. Emin Meral, Ahmet Teke and Mehmet Tumay: Cukurova University	<b>1364</b>
4F.9	<b>Parallel Connection of DC/AC Switched Mode Power Converter in Utility Distribution System</b> Kuan Lee Choo: Multimedia University, Malaysia	<b>1369</b>
4F.10	<b>Novel Single Phase Grid Connected Current-source PWM Inverter with Harmonic Suppression</b> Suroso and Toshihiko Noguchi: Nagaoka University of Technology, Nagaoka, Japan	<b>1373</b>
4F.11	<b>Improved Current Control Strategy for Shunt Active Power Filter</b> Berrin Susluoglu and Vedat M. Karsli: University of Gaziantep, Gaziantep, Turkey	<b>1379</b>

## 5A

## Electrical Machines and Drives 3

**Date:** 3 December 2008  
**Time:** 1400 to 1705  
**Venue:** Angsana Seminar Room

- 5A.1 **New Design for Electromagnetic Actuator of the VCB and Simulation of Its Static and Dynamic Behavior** 1383  
Saeed Jalilzadeh and Arash Shabani: Zanjan University, Zanjan, Iran  
Mehdi Zanjani: Pars Switch Company/R&D Department, Zanjan, Iran
- 5A.2 **Development of Artificial Neural Network Based Fault Diagnosis of Induction Motor Bearing** 1387  
Abd Kadir Mahamad and Takashi Hiyama: Kumamoto University 2-39-1 Kurokami, Kumamoto, Japan
- 5A.3 **Optimal Washing Time Control Algorithm for the Drum Washing Machine Using an Inertia Estimator** 1393  
Jung-Hyo Lee, Chun-Hwan Hwang, Kyung-min Kim, Won-Cheol Lee, Chung-Yuen Won and Young-Real Kim: Sungkyunkwan University, Suwon Gyeonggi-do, Korea
- 5A.4 **Simulation study of a series hybrid propulsion system for a bimodal tram** 1399  
Chang Han Bae, Seky Chang, Jai Kyun Mock and Kang Won Lee: Bimodal Transportation Research Corps., Korea Railroad Research Institute, Uiwang, South Korea  
Seok Youl Hwang: KookJe College, Pyeongtaek, South Korea
- 5A.5 **Measurement of Flux Density Distribution on 100kVA 3-Phase Distribution Transformer Assembled With 90° T-Joint and Mitred Lap Corner Joint with Stagger Yoke by Using Search Coil** 1404  
Dina M.M. Ahmad and I Daut: UniMAP, Malaysia
- 5A.6 **Estimation of Hot Spot Temperature in Distribution Transformer Considering Core Design Using FEM** 1408  
Sh.Taheri, A.Vahedi and A.Gholami: Iran University of Science and Technology, Tehran, Iran  
H.Taheri: Babol Industrial University, Babol, Iran
- 5A.7 **ANN-Based Detection of Broken Coils of Small Generator Stator with Two Parallel Branches in Phase** 1414  
Farhad Toorani and Iman Salabeigi: Amirkabir University of Technology, Tehran, I.R.Iran  
Ahmad Darabi: Shahrood University of Technology, Shahrood, Iran
- 5A.8 **Coilgun Energized by Commercial Power Supply** 1420  
Yoshiyuki UEHARA and Seizo FURUYA: Gunma University, Maebashi, Japan
- 5A.9 **Magnetic Levitation Control Based-on Neural Network and Feedback Error Learning Approach** 1426  
M.Aliasghary: Istanbul Technical University, Istanbul, Turkey  
M. Aliyari Shoorehdeli and M. Teshnehlab: K. N. Toosi University, Tehran, Iran  
A.Jalilvand: Zanjan University, Zanjan, Iran
- 5A.10 **Analysis of Disk MHD Induction Generator** 1431  
Pattana Intani and Nobuhiro Harada: Nagaoka University of Technology, Japan
- 5A.11 **Performance Study of a Diagonal MHD Accelerator for Space Propulsion** 1435  
Sukarsan and Makbul Anwari: Universiti Teknologi Malaysia, Malaysia  
Nobuhiro Harada: Nagaoka University of Technology, Japan

**5B****Power Electronics Converters 3****Date:****3 December 2008****Time:****1400 to 1705****Venue:****Hibiscus Seminar Room**

- 5B.1 **Self Commutation Soft Switched Bridgeless PFC Without Any Extra Switch** 1441  
M. Mahdavi and H. Farzanehfard: Isfahan University of Technology, Iran
- 5B.2 **Improvement in Ozone Generation with Low Voltage High Frequency Power Converters** 1446  
Mochammad Facta, Zainal Salam, Awang Jusoh and Zolkafle Bin Buntat: Universiti Teknologi Malaysia, Malaysia
- 5B.3 **A Low Ripple Voltage Multiplier for X-ray Power Supply** 1451  
Shahid Iqbal, Rosli Besar and C.Venkateshiaah: Multimedia University, Malaysia
- 5B.4 **A Novel Control Scheme for Voltage Multiplier Based X-ray Power Supply** 1456  
Shahid Iqbal, Rosli Besar and C. Venkateshaiah: Multimedia University, Malaysia
- 5B.5 **Particle Swarm Optimization and Genetic Algorithm to Optimizing the Pole Placement Controller on Cuk Converter** 1461  
M. R. Yousefi: Islamic Azad University, Najafabad Branch, Iran  
S. A. Emami and S. Eshtehardiha: Islamic Azad University, Khomeini shahr Branch, Iran  
M. Bayati Poudeh
- 5B.6 **A Novel Circuit of a Single-Switch Electronic Ballast with a Boost-type Resonant Converter Applied to HID Lamps** 1466  
Masato H. OHSATO and Kouki MATSUSE: Meiji University, Japan
- 5B.7 **Hardware Construction of a 5 kW Inverter for AC Power Supply Applications** 1471  
A. Jusoh , N. A. Azli and Z. Salam: Universiti Teknologi Malaysia, Malaysia
- 5B.8 **The Effect of Different Winding Techniques on the Stray Capacitances of High Frequency Transformers Used in Flyback Converters** 1475  
Sina Emrani Saravi, Abdolhossein Tahani and Reza Ahmadi Kordkheili: Noshirvani Institute of Technology, Babol, Iran  
Firuz Zare: Queensland University of Technology, Brisbane, Australia
- 5B.9 **Experimental Evaluation of Three Phase Hybrid Buck Rectifier** 1479  
Aziz, J.A and Nik Din Muhamad: Universiti Teknologi Malaysia, Malaysia

## 5C

Date:  
Time:  
Venue:

## Electrical Discharges and Breakdown

3 December 2008  
1400 to 1705  
Acadia Seminar Room

- 5C.1 **A Neuro-Fuzzy Approach for Estimation of Time-to-Flashover Characteristic of Polluted Insulators** 1485  
M. Savaghebi, A. Gholami, A. Jalilian and H. Hooshyar: Iran University of Science and Technology, Tehran, Iran
- 5C.2 **Computation of Lightning Flashovers & Backflashover Voltage Levels on 230KV Transmission Lines** 1488  
M. H. Shwehdi: King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia
- 5C.3 **Backflashover Analysis For 132 kV Kuala Krai-Gua Musang Transmission Line** 1494  
J. Sardi, M.Z.A Ab Kadir, W. F. Wan Ahmad, H. Hizam, I. Mohamed Rawi and A. Ahmad: Universiti Putra Malaysia, Malaysia
- 5C.4 **Annealing of Metal Wire by Atmospheric Pressure Discharge Plasma** 1498  
Tsubasa Nakamura: Oshima National College of Maritime Technology, Japan  
Chainarong Buttapeng: University of the Thai Chamber of Commerce, Thailand  
Seizo Furuya: Gunma University, Maebashi Japan  
Nobuhiro Harada: Nagaoka University of Technology, Nagaoka Japan
- 5C.5 **Genetic Algorithm Application to Corona Inception Voltage Estimation of Various Gas Mixtures** 1504  
E. Onal: Istanbul Technical University, Turkey
- 5C.6 **Development of Mathematical Equation for Determining Breakdown Voltage of Electrodes Gap** 1509  
M.A.M. Piah, P.A. Ping and Z. Buntat: Universiti Teknologi Malaysia, Malaysia
- 5C.7 **Identification of KEMA Arc Model Parameters in High Voltage Circuit Breaker by using of Genetic Algorithm** 1515  
Vahid rashtchi: Zanjan University, Iran  
Abbass Lotfi: Roozbeh Institute of technology, Zanjan, Iran  
Ali mousavi: Tehran University, Iran
- 5C.8 **Partial Discharge Characteristics of XLPE Cable Joint and Interfacial Phenomena with Artificial Defects** 1518  
Yanuar Z. Arief and Hussein Ahmad: University of Technology Malaysia, Malaysia  
Masayuki Hikita: Kyushu Institute of Technology, Japan
- 5C.9 **The Proposed Humidity Correction Factor of Positive DC Breakdown Voltage of Sphere-Sphere Gap At  $h/\delta$  Lower than  $13 \text{ g/m}^3$**  1524  
Surasak Phontusa and Supakit Chotigo: King Mongkut's University of Technology Thonburi, Bangkok, Thailand
- 5C.10 **Frequency Spectral Analysis of Electrical Partial Discharge Signals in XLPE Cable under Various Soil Conditions** 1528  
Yasmin H. Md Thayoob: Universiti Tenaga Nasional, Malaysia  
P.S. Ghosh: RUP Consultant Plus Inc.(M) Sdn. Bhd., B. B. Bangi, Malaysia  
Ahmad Basri Abd Ghani: TNB Research Sdn. Bhd., Malaysia
- 5C.11 **Effect of Electrode Material on the Breakdown Voltage of  $\text{SF}_6\text{-N}_2$  and  $\text{SF}_6\text{-CO}_2$  Mixtures in a Weakly Non-Uniform Electric Field** 1532  
H. Sharifpanah, A. Gholami, and S. Jamali: Iran University of Science and Technology, Tehran, Iran



**5D**

**Date:**  
**Time:**  
**Venue:**

**Distributed Generation**

**3 December 2008**  
**1400 to 1705**  
**Daffodil Seminar Room**

- 5D.1 **Optimal Siting and Sizing of Distributed Generations in Radial and Networked Systems Considering Different Voltage Dependent Static Load Models** 1535  
R. K. Singh and S. K. Goswami: Department of Electrical Engineering, Jadavpur University, Kolkata, India
- 5D.2 **Combination of GA and OPF for Allocation and Active and Reactive Power Optimization in Distributed Generation Units** 1541  
M.Hosseini Aliabadi: Islamic Azad University (Abhar Branch), Abhar  
B.Behbahani: Amirkabir University of Technology, Tehran, Iran  
A.Jalilvand: Zanzan University, Zanzan, Iran
- 5D.3 **Dynamic Simulation of Microturbine Distributed Generators integrated with Multi-Machines Power System Network** 1545  
M. Z. C. Wanik and I. Erlich: University of Duisburg-Essen, Germany
- 5D.4 **Reliability Assessment of Distribution System With Distributed Generation** 1551  
Pedram Jahangiri and Mahmud Fotuhi-Firuzabad: Sharif University of Technology  
Azadi Ave, Tehran, Iran
- 5D.5 **Decentralized Voltage Control in Distribution System Using Neural Network** 1557  
Shohei Toma, Tomonobu Senjyu, Yoshitaka Miyazato, Atsushi Yona and Kennichi Tanaka:  
University of the Ryukyus, Nakagami, Japan  
Chul-Hwan Kim: Sungkyunkwan University, Swon City, Korea
- 5D.6 **Analysis of Three Phase Distribution Networks with Distributed Generation** 1563  
Syafii: Andalas University, Padang, Indonesia  
Khalid Mohamed Nor: University of Technology Malaysia, Malaysia  
Mamdouh Abdel-Akher: South Valley University, Aswan, Egypt
- 5D.7 **Impact of Distributed Generation on Distribution System's Reliability Considering Recloser-Fuse Miscoordination-A Practical Case Study** N/A  
S. A. M. Javadian, Ghods Niroo Engineering Company (GNEC), Teheran, Iran.
- 5D.8 **DG Allocation Using an Analytical Method to Minimize Losses and to Improve Voltage Security** 1569  
P. Alemi: Islamic Azad University, Science & Research Branch, Tehran, Iran  
G.B. Gharehpetian: Amirkabir University of Technology, Tehran, Iran
- 5D.9 **Impact of Wind Power Penetration on Transients and Dynamics of Micro-Grids Due to Wind Turbine Structures and Operation Constraints** 1575  
S. Mostafa Hashemi-Toghroljerdi and Akbar Ebrahimi: Isfahan University of Technology, Isfahan, Iran
- 5D.10 **Optimal Allocation of DGs and RCSs to Improve Distribution Network Reliability and Network Energy Loss** 1580  
A. F. Khoshbakht and M. Raoofat: Shiraz University, Shiraz, Iran
- 5D.11 **Gas Based Distributed Generation Systems, a Key to Iran Buildings Growing Energy Demand** 1586  
R.Arghandeh Jouneghani: University of Manchester & K.N.Toosi University  
of Technology MSc joint Program, Tehran, Iran  
R.Parvizi, M.Amidpour and A.Chaibakhsh: K.N.Toosi  
University of Technology, Tehran, Iran

**5E****Power System Planning and Reliability****Date:****3 December 2008****Time:****1400 to 1705****Venue:****Jasmine Seminar Room**

5E.1	<b>Customized Fault Management System for Low Distribution Automation System</b> M. M. Ahmed and W. L. Soo: Universiti Teknikal Malaysia Melaka (UTeM), Malaysia	<b>1591</b>
5E.2	<b>Autoregressive Method in Short Term Load Forecast</b> Zuhairi Baharudin and Nidal Kamel: Universiti Teknologi PETRONAS, Malaysia	<b>1597</b>
5E.3	<b>Assessment of Power Composite System Annualized Reliability Indices Based on Improved Particle Swarm Optimization and Comparative Study Between the Behaviour of GA and PSO</b> Gholami, Mohamad Reza, Dr. Hoseini, Seied Hadi, Mohamad Taheri and Meisam: University of Zanjan, Zanjan, Iran	<b>1603</b>
5E.4	<b>Newton-Raphson on Power Flow Algorithm and Broyden Method in the Distribution System</b> Hui Yang, Fushuan Wen and Liping Wang: South China University of Technology, Guangzhou , China	<b>1607</b>
5E.5	<b>Risk Based Static Security Assessment in a Practical Interconnected Power System</b> M. Marsadek, A. Mohamed, M. Nizam and Z. M. Norpiah: Universiti Kebangsaan Malaysia, Malaysia	<b>1613</b>
5E.6	<b>Effects of Inverter Modulation Index on the Stability of Grid Connected Micro-Turbines</b> H. Kazemi Karegar: Shahid Beheshti University, Tehran, Iran A. Shabani: Zanjan University, Zanjan, Iran	<b>1617</b>
5E.7	<b>Newton-Downhill Algorithm for Distribution Power Flow Analysis</b> Hui Yang, Fushuan Wen and Liping Wang: South China University of Technology, Guangzhou , China S.N. Singh: Indian Institute of Technology Kanpur, Kanpur, India	<b>1622</b>
5E.8	<b>New Method for Islanding Detection of Wind Turbines</b> H. Kazemi Kargar: Shahid Beheshti University, Tehran, Iran J. Mirzaei: Zanjan University, Zanjan, Iran	<b>1627</b>
5E.9	<b>Power Line Carrier (PLC) Based Communication System for Distribution Automation System</b> M. M. Ahmed and W. L. Soo: Universiti Teknikal Malaysia Melaka (UTeM), Malaysia	<b>1632</b>
5E.10	<b>Online Fault Detection for Power System using Wavelet and PNN</b> Mohd Fauzi Othman and Hudabiyah Arshad Amari: Universiti Teknologi Malaysia	<b>1638</b>

**5F****Transmission and Distribution****Date:****3 December 2008****Time:****1400 to 1705****Venue:****Orchid Seminar Room**

5F.1	<b>Environmental Benefits through New Distributed on Site Control Action Inside European Apartments</b> D. La Cascia and R. Miceli: University of Palermo, Italy	<b>1643</b>
5F.2	<b>Supervisory Control and Data Acquisition System (SCADA) Based Customized Remote Terminal Unit (RTU) for Distribution Automation System</b> M. M. Ahmed and W. L. Soo: Universiti Teknikal Malaysia Melaka, Malaysia	<b>1649</b>
5F.3	<b>A Simplified Approach in Estimating Technical Losses in Distribution Network Based on Load Profile and Feeder Characteristics</b> Mau Teng Au, Tashia M. Anthony, Nurhafizah Kamaruddin, Renugah Verayiah and Sharifah A. Syed Mustaffa: Universiti Tenaga Nasional, Malaysia Marina Yusoff: TNB Research, Malaysia	<b>1655</b>
5F.4	<b>Identification of cross-border power flows in integrated networks based on the principle of superposition</b> Martin Wolter and Benjamin Hühnerbein: Leibniz Universität Hannover / Institute of Electric Power Systems – Division of Power Supply, Hannover, Germany	<b>1660</b>
5F.5	<b>Load Sharing Characteristic of Single Phase PV Inverter Connected to Grid</b> M. Imran Hamid, Makbul Anwari and Z. Salam: Universiti Teknologi Malaysia, Malaysia Taufik: Cal Poly State University, USA	<b>1666</b>
5F.6	<b>Laboratory Testing on Overhead Line for Various Load Conditions</b> E. Sulaiman, M. Saufi, M. Zarafi and B.C. Kok: Universiti Tun Hussein Onn Malaysia, Malaysia	<b>1671</b>
5F.7	<b>Analysis and Simulation of Possible Bifurcation and Subharmonic Oscillation in Transformer Coupled TCR System</b> A. Majzoob Ghadiri, M. Rostami and Ahamad Parvizi: Shahed University, Engineering Faculty, Tehran, IRAN	<b>1676</b>
5F.8	<b>An Experimental Study on Partial Discharge Characteristics of Polyvinyl Chloride (PVC) Under AC – DC Voltages</b> Abdul Syakur: Universitas Diponegoro, Indonesia Yanuar Z. Arief, Zulkurnain A. Malek and H Ahmad: Universiti Teknologi Malaysia, Malaysia	<b>1681</b>
5F.9	<b>Voltage Stability Evaluation of Real Power Transmission System Using Singular Value Decomposition Technique</b> K. Ellithy, M. Shaheen and M. Al-Athba: Qatar University, Doha, Qatar A. Al-Subaie, S. Al-Mohannadi, S. Al-Okkah and S. Abu-Eidah: Qatar General Electricity and Water Cooperation, Doha, Qatar	<b>1685</b>