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The International Association of Science and Technology for Development

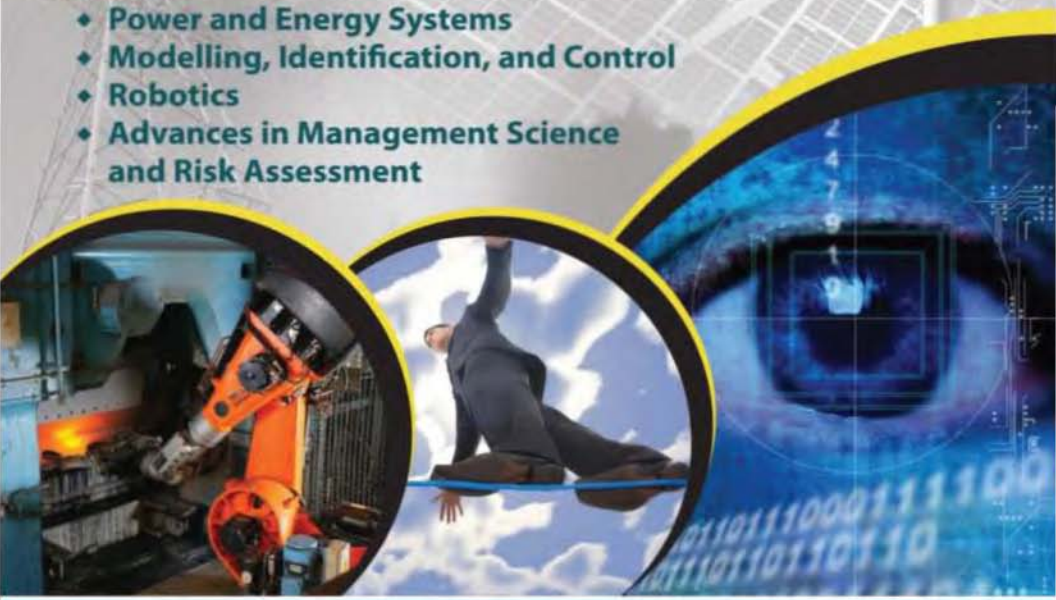
Conference Program

November 24 – 26, 2010 | Phuket, Thailand

IASTED Technology and Management Conferences 2010

includes:

- **Power and Energy Systems**
- **Modelling, Identification, and Control**
- **Robotics**
- **Advances in Management Science and Risk Assessment**



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World Modelling and Simulation Forum (WMSF)

WMSF

LOCATION

Novotel Phuket Resort, Kalim Beach, Patong, Phuket 83150 Thailand
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IASTED Technology and Management Conferences 2010 include

Power and Energy Systems (AsiaPES 2010)
Modelling, Identification, and Control (AsiaMIC 2010)
Robotics (Robo 2010)
Advances in Management Science and Risk Assessment (AMSRA 2010)

Phuket, Thailand
November 24 - 26, 2010

CONFERENCE PROGRAM

LOCATION
Novotel Phuket Resort
Kalim Beach, Patong
Phuket 83150 Thailand

POWER AND ENERGY SYSTEMS
AsiaPES 2010

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Prof. Akihiro Ametani - Doshisha University, Japan

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Dr. Somyot Kaitwanidvilai - King Mongkut's Institute of Technology Ladkrabang, Thailand
Prof. Akihiro Ametani - Doshisha University, Japan

TUTORIAL SESSION
Dr. Komsan Hongesombut - Kasetsart University, Thailand

PLEASE NOTE

- Paper presentations are 15 minutes in length with an additional 5 minutes for questions.
- Report to your Session Chair 15 minutes before the session is scheduled to begin.
- Presentations should be loaded onto the presentation laptop in the appropriate room prior to your session.
- End times of sessions vary depending on the number of papers scheduled.

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PROGRAM OVERVIEW

Wednesday, November 24, 2010

07:00 – Registration
(Siam Foyer)

08:15 – 08:30 AsiaMIC Welcome Address
(Siam B Room)

08:30 – 08:45 Robo Welcome Address
(Siam C Room)

08:45 – 09:00 AsiaPES Welcome Address
(Siam A Room)

08:30 – AsiaMIC Session 3 – Predictive Control and Adaptive Control
(Siam B Room)

08:45 – Robo Session 1 – Human Robot Interaction
(Siam C Room)

09:00 – AsiaPES Session 7 – Power System Security and Operation
(Siam A Room)

09:00 – AsiaPES Session 4 – Wind Power
(Siam D Room)

10:30 – 11:00 Coffee Break
(Siam Foyer)

10:45 – 11:00 AMSRA Welcome Address
(Siam D Room)

11:00 – AsiaPES/AMSRA Keynote Speaker – "A Large Scale Integration of Renewable Energy Sources into Smart Grids in Japan" - Prof. Akihiko Yokoyama
(Siam A Room)

11:00 – AsiaMIC Session 3 Continued
(Siam B Room)

11:00 – Robo Session 1 Continued
(Siam C Room)

12:00 – Lunch Break
(Coffee House Restaurant)

14:00 – AsiaPES Session 10 – Energy and Environment
(Siam A Room)

14:00 – AsiaPES Special Session 2 – Wide Area Monitoring, Protection, and Control (WAMPAC) Systems
(Siam D Room)

14:00 – AMSRA Session 1 – Risk Assessment
(Bhuket AB Room)

14:00 – Robo/AsiaMIC Keynote Speaker – "Grand Challenge of the Robotic Technology" – Prof. Toshio Fukuda
(Siam C Room)

14:00 – AsiaPES Session 2 – Distributed Generations
(Siam B Room)

15:00 – 15:30 Coffee Break
(Siam Foyer)

15:30 – AsiaPES Session 10 Continued
(Siam A Room)

15:30 – AsiaPES Special Session 2 Continued
(Siam D Room)

15:30 – AMSRA Session 1 Continued
(Bhuket AB Room)

15:30 – Robo Session 3 - Sensor and Vision
(Siam C Room)

15:30 – AsiaMIC Session 5 – Robotics and Mechatronics
(Siam B Room)

Thursday, November 25, 2010

08:30 – AsiaPES Special Session 5 – Transient Analysis in a Power System
(Siam A Room)

08:30 – AsiaPES Session 9 – Renewable Power Generation
(Siam C Room)

08:30 – AsiaPES Session 1- Solar Photovoltaic
(Bhuket AB Room)

08:30 – AsiaMIC Session 7 – Control Theory
(Siam B Room)

08:30 – Robo/AMSRA Tutorial Session – "Knowledge Management in Research Organization Using STREAM Tools" – Prof. Alexander Mamishev
(Siam D Room)

10:00 – 10:30 Coffee break
(Siam Foyer)

10:30 – AsiaPES Special Session 5 Continued
(Siam A Room)

10:30 – AsiaPES Session 1 Continued
(Bhuket AB Room)

10:30 – AsiaMIC Session 7 Continued
(Siam B Room)

10:30 – Robo/AMSRA Tutorial Session Continued
(Siam D Room)

10:30 – AsiaPES Session 8 – Power System Planning
(Siam C Room)

12:15 – Lunch Break
(Coffee House Restaurant)

14:00 – AsiaPES Keynote Speaker – "Lightning Surge Analysis by EMTP and Numerical Electromagnetic Analysis Method" - Prof. Akihiro Ametani
(Siam A Room)

14:00 – AsiaMIC Session 8 – Biological, Medical, Environmental, and Economic Applications
(Siam B Room)

14:00 – Robo Session 5 – Robotics and Control
(Siam C Room)

14:00 – AMSRA Session 2 – Modelling, Information Systems and Applications
(Siam D Room)

15:00 – 15:30 Coffee Break
(Siam Foyer)

15:30 – AsiaMIC Session 8 Continued
(Siam B Room)

15:30 – Robo Session 5 Continued
(Siam C Room)

15:30 – AMSRA Session 2 Continued
(Siam D Room)

15:30 – AsiaPES Session 3 – Renewable Energy and Power Quality
(Siam A Room)

15:30 – AsiaPES Special Session 1 – Microgrid and Smart Grid Conrol
(Bhuket AB Room)

16:30 – AsiaMIC Session 4 – Robust Control
(Siam B Room)

16:30 – AsiaMIC Session 6 – Process, Energy, and Power Systems
(Siam D Room)

19:00 – Dinner Banquet
(Rabiang Terrace)

Friday, November 26, 2010

08:30 – AsiaPES Tutorial Session – "Smart Power System Analysis Tools for Smart Grid" – Dr. Komsan Hongesombut *(Siam A Room)*

08:30 – AsiaMIC Session 9 – Modelling and Identification *(Siam D Room)*

08:30 – AsiaMIC Session 2 – Modelling and Simulation *(Siam B Room)*

08:30 – Robo Tutorial Session – "Fringing Electric Field Sensors" – Prof. Alexander Mamishev *(Siam C Room)*

10:30 – 11:00 Coffee Break *(Siam Foyer)*

11:00 – AsiaPES Tutorial Session Continued *(Siam A Room)*

11:00 – AsiaMIC Session 2 Continued *(Siam B Room)*

11:00 – Robo Tutorial Session Continued *(Siam C Room)*

12:00 – Lunch Break *(Coffee House Restaurant)*

14:00 – AsiaPES Special Session 3 – Artificial Intelligence in Smart Power and Energy Systems *(Siam A Room)*

14:00 – AsiaPES Session 5 – Power System Stability and Control *(Siam D Room)*

14:00 – AsiaMIC Special Session 1 - Advanced Mathematical and Statistical Models for Sustainable Development *(Siam B Room)*

14:00 – Robo Session 2 – Automation and Manufacturing *(Siam C Room)*

15:40 – 16:10 Coffee Break *(Siam Foyer)*

16:10 – AsiaPES Session 5 Continued *(Siam D Room)*

16:10 – AsiaPES Session 6 – Power System Protection and Metering *(Siam A Room)*

16:10 – AsiaMIC Session 10 – Filtering, Estimation, and Optimization *(Siam B Room)*

16:10 – Robo Session 4 – Mechanics Analysis and Design *(Siam C Room)*

Saturday, November 27, 2010

07:30 – Koh Phi Phi Island by Speedboat Day Trip *(Novotel Phuket Resort Lobby)*

Wednesday, November 24, 2010

07:00 – REGISTRATION
Location: Siam Foyer

08:15 – 08:30 – AsiaMIC WELCOME ADDRESS
Location: Siam B Room

08:30 – 08:45 – Robo WELCOME ADDRESS
Location: Siam C Room

08:45 – 09:00 – AsiaPES WELCOME ADDRESS
Location: Siam A Room

08:30 – AsiaMIC SESSION 3 – PREDICTIVE CONTROL AND ADAPTIVE CONTROL
Chair: Dr. Eng. Konrad Wojdan (Poland)
Location: Siam B Room

702-005
Transition States Handling in Self-Adaptive Steady State Optimizer of Industrial Processes
K. Wojdan, K. Swirski, and M. Warchol (Poland)

702-019
Fuzzy Control with Prediction of Temperature in 300kA Aluminum Production Pot Lines
S. Zeng, J. Li, X. Ren, and Z. Zhao (PR China)

702-039
Periodic Robust Magnetic Attitude Control of Low Earth Orbit Small Satellite
P. Artitthang, V. Malyavej, and M. Aorpimai (Thailand)

702-048
3D Position Measurement System for Moving Objects based on Active Vision
K. Hirata, M. Nakazawa, and N. Kida (Japan)

702-071
Synchronization of Rössler Oscillators on a Spatially Embedded Network: The Role of Interaction Topology
M. Gosak and M. Marhl (Slovenia)

702-077
Chromosome-Controlled Structure Building in Decentralized Computer Systems
P. Sukjit and H. Unger (Germany)

702-081
Control of a Multi Laser Tracker System used as a Position Feedback Sensor
T.T. Nguyen, Q.T. Nguyen, A. Amthor, and C. Ament (Germany)

08:45 – Robo SESSION 1 – HUMAN ROBOT INTERACTION

Chairs: Prof. Kenichi Yano (Japan) and Assc. Prof. Ratchatin Chancharoen (Thailand)
Location: Siam C Room

703-015
Evaluation of Remote Class Support System with the Android Robot SAYA in Elementary Schools
T. Hashimoto, N. Kato, and H. Kobayashi (Japan)

703-017
Force Feedback Device for Virtual Reality: Arm Exoskeleton
C. Silawatchananai and M. Parnichkun (Thailand)

703-038
Master-Slave Operation for a 6-DOF Parallel Haptic Device and a Hybrid 5-Axis H-4 Family Parallel Manipulator
V. Sangveraphunsiri and R. Arayavongkul (Thailand)

703-053
Development of Master Slave Manipulator (1 DOF) using PIC 18LF2431
A. Vasumalaikannan, S.J. George, S. Venugopal, and R. Kumar (India)

703-023
Tracking Control of a Tele-Operated Manipulator
T. Viphavorasin and R. Chancharoen (Thailand)

703-041
Tremor Suppression using Proxy-based Sliding-Mode Control for a Meal-Assist Robot
K. Nishiwaki, S. Hiramatsu, and K. Yano (Japan)

703-027
Efficient Second-Order Minimization based Visual Tracking on Moving Face
L.D. Hanh, Chyi-Yeu Lin, Chi-Ying Lin (Japan), and K. Hashimoto (Taiwan)

703-039
Mobile Robot System "LiSA" for Safe Human-Robot Interaction
N. Elkmann, E. Schulenburg, and M. Fritzsche (Germany)

09:00 – AsiaPES SESSION 7 – POWER SYSTEM SECURITY AND OPERATION

Chairs: Dr. Martin Wolter (Germany) and Dr. Eng. Edwin Lerch (Germany)
Location: Siam A Room

701-021
Dynamic System Security Assessment using Inventive Simulation Techniques
E. Lerch (Germany) and U. Kerin (Slovenia)

701-088
Allocation of Responsibility for Congestions in Transmission Systems based on Power Flow Decomposition
M. Wolter and L. Hofmann (Germany)

701-101
Voltage Collapse Constrained Loadabililty Analysis of Bangladesh Power System Network
Md.J.-E. Alam (Australia) and A.H. Chowdhury (Bangladesh)

701-109
Adaptive Real Range Genetic Algorithm for Combined Heat & Power Economic Dispatch
A.K. AL-Othman and S.S. AL-Mutar (Kuwait)

09:00 – AsiaPES SESSION 4 – WIND POWER
Chair: Dr. Md Fakhrul Islam (Australia)
Location: Siam D Room

701-037
The Impact of Wind Power Loading on the Power System Transient Stability
R.T. Ayodele, A.A. Jimoh, J.L. Munda, and J.T. Agee (S. Africa)

701-038
Modified Cascade-Correlation of ANN for Short Term Prediction of Wind Speed
Md.F. Islam and A.M.T. Oo (Australia)

701-043
Performance Analysis of Hybrid (Wind & Solar) Power Plant - A Case Study
S.M. Jaralikar and M. Aruna (India)

701-084
Application of Resistive Type Superconducting Fault Current Limiter to Wind Farm Interconnection in Smart Grid System
K. Hongesombut (Thailand)

701-137
Simulation based Power Quality Prediction of Jeju Power System with Wind Farms using RTDS
G.-H. Kim, H.-T. Bae, S.-Y. Kim, C. Hwang, H.-G. Lee, N. Kim, H.-R. Seo, M. Park, I.-K. Yu, J.-D. Park, D.-Y. Yi, and S. Lee (Korea)

10:30 – 11:00 – COFFEE BREAK
Location: Siam Foyer

10:45 – 11:00 – AMSRA WELCOME ADDRESS
Location: Siam D Room

11:00 – AsiaPES/AMSRA KEYNOTE SPEAKER – "A LARGE SCALE INTEGRATION OF RENEWABLE ENERGY SOURCES INTO SMART GRIDS IN JAPAN"

Presenter: Prof. Akihiko Yokoyama (Japan)
Location: Siam A Room

In recent years, global warming, energy saving, and energy security have become major issues. As a result, large scale development of renewable energy sources such as wind and photovoltaic (PV) power generation is planned for the near future. However, reliance on renewable energy sources may cause problems in power systems operations, such as excess energy from PV power generation, frequency fluctuations, and distribution voltage increases. Smart grid is a new and better approach to these future power systems, enabling us to resolve the issues in power systems operations through the use of information and communication technology (ICT). This presentation introduces the concept, features, and challenges associated with the realization of Smart Grid, especially when the penetration of renewable energy sources is extensive. Six technological features of a Japanese smart grid will be presented.
Battery Energy Storage System (BESS) is a well known and effective technology to solve problems in power systems operations. Because of the high cost of BESS, it is preferable to maintain as small an installation capacity as possible. To do so, an appropriate control method and ideal location of the BESS in the power system should be determined. The output suppression controls of PV and wind power generations are proposed from the system viewpoint. Furthermore, the output control of controllable small-size generators in microgrids will also be considered for their contribution to load frequency control of power systems.
In this presentation, a number of Heat Pump Water Heaters (HPWHs) and Electric Vehicles (EVs), the energy efficient-use customer equipment with energy storage equipment, are considered as controllable loads for regulating the system frequency. The utilization of the customer equipment for power system control, e.g. the frequency regulation and the emergency control, while considering customer benefit or customer comfort, is one of the key elements in the concept of a smart grid in Japan.
It is essential to develop a novel control method of the controllable loads taking into account both the uncertainty of generating power caused by a large integration of renewable energy sources, and the uncertainty of regulating capacity of controllable loads caused by customer utilization.

Prof. Akihiko Yokoyama is a Professor in the Department of Advanced Energy at the University of Tokyo. He received his B.E., M.E. and D.E. degrees in the Department of Electrical Engineering from the University of Tokyo, Japan in 1979, 1981 and 1984 respectively. He was the Head of the Department of Electrical Engineering and the Chairman of the International Exchange Committee of the University of Tokyo. He has been a Vice-President of Central Research Institute of Electric Power Industry in Japan since 2005.

Prof. Yokoyama has been participating in various academic activities. He was a TPC member of PSCC (Power System Computation Conference), a Vice Chairman of the Technical Committee of Protective Relay of the IEE Japan, an Executive Board member of the Power and Energy Society of the IEE Japan and the Chairman of the Membership Development Committee of the IEEE Tokyo Chapter. He has also been the Chairman of the Japanese National Committee of IEC TC8, the Vice Chairman of the Japanese National Committee of CIGRE and the Chairman of PES of the IEEE Japan Chapter.

Prof. Yokoyama's research interests are: power system planning, operation, control and analysis, deregulation, distributed generation, microgrid and smart grid.

11:00 – AsiaMIC SESSION 3 CONTINUED
Location: Siam B Room

11:00 – Robo SESSION 1 CONTINUED
Location: Siam C Room

12:00 – LUNCH BREAK
Location: Coffee House Restaurant

14:00 – AsiaPES SESSION 10 – ENERGY AND ENVIRONMENT
Chairs: Prof. Anil Kumar Rajvanshi (India) and Dr. Aziz Hayat (Australia)
Location: Siam A Room

701-077
GM(1,1) for Carbon Dioxide Emissions with a Taiwan Study
C.-S. Lin, F.-M. Liou, and C.-P. Huang (Taiwan)

701-113
Do Demand and Supply Shocks Explain USA's Oil Stock Fluctuations?
A. Hayat and P.K. Narayan (Australia)

701-122
Suitable Forms of Alternative Electricity-Supplementing Energy for Chiang Rai Province
W. Nanglae (Thailand)

701-132
Solar Cabinet Drying of Green Chilies and Potato Chips - An Experimental Study
G.D. Agrawal and D. Parikh (India)

701-134
Heat Transfer Enhancement with Al2O3 Nanofluid in Convective Heat Transfer
A.K. Rajvanshi and O.S. Prajapati (India)

701-144
The Comparison of Effect on Conducted EMI Emission and Harmonic Noise from Compact Fluorescent Lamp or Energy Saving Lamps
C. Uyaisom (Thailand)

701-145
The Comparison of Effect on Conducted EMI Emission and Harmonic Noise from Circuits of Electronic Ballasts
C. Uyaisom (Thailand)

701-020
An Innovative Drainpipe Integrated Solar-Water Collector: Presentation and First Results
F. Motte, C. Cristofari, P. Poggi, G. Notton, and J.-L. Canaletti (France)

14:00 – AsiaPES SPECIAL SESSION 2 – WIDE AREA MONITORING, PROTECTION, AND CONTROL (WAMPAC) SYSTEMS

Chair: Dr. Takuhei Hashiguchi (Japan)
Location: Siam A Room

701-159
Design of Robust Centralized PSS based on WAMS Considering System and Signal Transmission Delay Uncertainties
M. Saejia and I. Ngamroo (Thailand)

701-156
Mode Separation Method of Power System Oscillations by Applying Center of Inertia Frequency Estimated by Actual Measurement Data
T. Hashiguchi, T. Goda, Y. Mitani, M. Watanabe, O. Saeki, M. Hojo, and H. Ukai (Japan)

701-157
Online Monitoring of Power System Dynamics by Phasor Measurements at Low Voltage Terminals
M. Hojo, M. Emoto, Y. Mitani, H. Ukai, and O. Saeki (Japan)

701-158
Synchrophasor based Controller Design for Frequency Stabilization of Interconnected Power System with Plug-In Electric Vehicles
S. Dechanupaprittha (Thailand) and Y. Mitani (Japan)

701-160
Wide Area SMES Controller Design using Least-Squares Support Vector Machines
J. Pahasa and I. Ngamroo (Thailand)

14:00 – AMSRA SESSION 1 – RISK ASSESSMENT

Chair: Asst. Prof. Natasha Dejdumrong (Thailand)
Location: Bhuket AB Room

704-036
A Design for an Assessment Process for Dependability based on a Formal Model
K. Okamoto, Y. Kinoshita, T. Seino, N. Izumi, K. Hasida, and H. Takamura (Japan)

704-053
A Risk and Cost-Benefit Assessment of Information Security Measures in Lubricating Oils Company
N. Dejdumrong, N. Anannavee, and T. Uttranadhi (Thailand)

704-016
Model for Bankruptcy Prediction: Naïve Bayesian Networks based on MDL Principle
K.W. Deng, S.S. Xia, and H. W. Zhang (PR China)

704-029
Authentic Appreciation of Deterministic Risks in Data Centre Implementation and Operations
M. Wiboonrat (Thailand)

704-043
Risk Assessment for Road Safety Evaluation on Two Lane Rural Highways
S. Cafiso and G. La Cava (Italy)

704-055
A Contingency Planning for Information System and Communication Security in Poultry Export Industry
N. Dejdumrong, S. Plaengsorn, and W. Jantawong (Thailand)

704-044
A Copula Contagion Mixture Model and its Pricing Impact on Portfolio Credit Derivatives
H. Zheng (UK)

14:00 – Robo/AsiaMIC KEYNOTE SPEAKER – "GRAND CHALLENGE OF THE ROBOTIC TECHNOLOGY"

Presenter: Prof. Toshio Fukuda (Japan)
Location: Siam C Room

Robotic technology has been making remarkable progress in many fields of our daily life, such as safety, security and health. Micro and nano robotic technology is furthermore necessary to improve the higher

accuracy and sensitivity as well as reducing the cost and material consumptions, including the energy saving. Thus, it is expected to play an important role in the green and life innovations. This lecture describes such innovative challenges in many fields by robotic technology, such as environmental robotics applications, bio-medical robotic applications, life supporting applications for the aging society.

Toshio Fukuda received Dr.Eng. from the University of Tokyo in 1977, currently Director of Center for Micro-Nano Mechatronics and Professor of Department of Micro-Nano Systems Engineering at Nagoya University, involved in the fields of intelligent robotic and mechatronic system, cellular robotic system, and micro-nano robotic system. President of IEEE Robotics and Automation Society (1998-1999), Director of the IEEE Division X, Systems and Control (2001-2002).

14:00 – AsiaPES SESSION 2 – DISTRIBUTED GENERATIONS
Chair: TBA
Location: Siam B Room

701-015
A Hierarchy Control Stategy of Distributed Generation with Power Electronic Grid Interface
W. Sinsukthavom, E. Ortjohann, M. Lingemann, S. Jaloudi, P. Wirasanti (Germany), and D. Morton (UK)

701-049
A Study on Power System Applications of Next-Generation Power Devices through Analytic Hierarchy Process
Y. Omagari, O. Saeki, Y. Miura, and H. Sugihara (Japan)

701-067
Optimal Choice and Allocation of Distributed Generations using Evolutionary Programming
R. Jomthong and P. Jirapong (Thailand)

701-016
Clustered Multi-Level Hierarchy for Secondary Power System Control
M. Lingemann, E. Ortjohann, W. Sinsukthavorn, S. Jaloudi (Germany), and D. Morton (UK)

15:00 – 15:30 – COFFEE BREAK
Location: Siam Foyer

15:30 – AsiaPES SESSION 10 CONTINUED

Location: Siam A Room

15:30 – AsiaPES SPECIAL SESSION 2 CONTINUED

Location: Siam D Room

15:30 – AMSRA SESSION 1 CONTINUED

Location: Bhuket AB Room

15:30 – Robo SESSION 3 – SENSOR AND VISION

Chair: Dr. Simon Thompson (Japan)
Location: Siam C Room

703-054
Mobile Robot Localization by EKF and Indoor GPS based on Eliminated Maximum Error Anchor
H. Kang, J. Yun, S. Kim, and J. Lee (Korea)

703-056
An Interactive 3D Sensor System and its Programming for Target Localizing in Robotics Applications
T. Heikkilä, J.M. Ahola, E. Viljamaa, and M. Järviluoma (Finland)

703-058
Predictability of Human Motion for Mobile Robot Control
S. Thompson and S. Kagami (Japan)

703-037
Arrowhead Detection Method for Traffic Guidance Sign Structure Analysis based on Genetic Algorithm
A. Vavilin, K. Deb, and K.-H. Jo (Korea)

703-031
A Model for Type-2 Fuzzy Control Traffic Shaping over High Speed Network using Double Token Leaky Bucket
S. Lekcharoen (Thailand)

15:30 – AsiaMIC SESSION 5 – ROBOTICS AND MECHATRONICS

Chairs: Dr. Qin Li (The Netherlands) and Prof. K. Khorasani (Canada)
Location: Siam B Room

702-035
Modeling and Control of the AGV System in an Automated Container Terminal
Q. Li, J.T. Udding, and A.Yu. Pogromsky (The Netherlands)

702-043
Estimation of UAV's Attitude by using Multi-Sensor Integration
H.P. Thien, T. Mulyanto, H. Muhammad (Indonesia), and S. Suzuki (Japan)

702-051
Coordinated Rendezvous for Multiple Unmanned Aerial Vehicles (UAVs) Subject to Actuator Faults
M.P. Khan and K. Khorasani (Canada)

702-088
A Study of Space Vector Modulation based Direct Torque Control of Induction Motor
L. Kumar, A. Ojha, and S. Jain (India)

702-004
A Study on Modelling and Simulation of Dynamic Behavior of Fiber Metal Laminates (FMLs) under Low-Velocity Impact
F. Ashenai Ghasemi, Gh. Payeganeh, and K. Malekzadehfard (Iran)

Thursday, November 25, 2010

08:30 – AsiaPES SPECIAL SESSION 5 – TRANSIENT ANALYSIS IN A POWER SYSTEM

Chair: Prof. Akihiro Ametani (Japan)
Location: Siam A Room

701-164
A Basic Study on Surge Over-Voltages in a Smart Grid
A. Ametani, Y. Azewaki, J. Takami, and S. Okabe (Japan)

701-162
A TLM-based Surge Calculation Considering Lumped-Circuit Elements
S. Yuda, N. Okazima, Y. Baba, N. Nagaoka, and A. Ametani (Japan)

701-167
An Efficient Approach for Incorporation with a Non-Linear Element in a Quasi Static Partial Element Equivalent Circuit Method in the Time Domain
P. Yutthagowith (Thailand) and A. Ametani (Japan)

701-161
Behavior of Interturn Fault in Transformer Windings using Discrete Wavelet Transform
C. Jettanasen, A. Ngaopitakkul, and C. Apisit (Thailand)

701-166
Lightning Overvoltages in a Wind Turbine Generator System
K. Yamamoto (Japan)

701-163
Numerical Analysis of Lightning Electromagnetic Pulses using the Constrained Interpolation Profile Method
K. Miyagawa, S. Matsumoto, Y. Baba, N. Nagaoka, and A. Ametani (Japan)

701-165
Transient Response of a Building with Multiple Down Conductors to a Direct Lightning
H. Uno, N. Nagaoka, Y. Baba, and A. Ametani (Japan)

08:30 – AsiaPES SESSION 9 – RENEWABLE POWER GENERATION

Chair: Dr. G. K. Singh (India)
Location: Siam C Room

701-045
Numerical Study of Disk AC MHD Generation
P. Intani, T. Sasaki, T. Kikuchi, and N. Harada (Japan)

701-108
Energy from Forestry & Agricultural Residues
J. Payamara (Iran)

701-118
Modeling and Experimental Analysis of a Six-Phase Synchronous Generator for Stand-Alone Renewable Energy Generation
G.K. Singh (India)

701-126
Energy Conservation via the Diffusion of Sustainable Energy in Union of Myanmar
W.W. Kyaw (Thailand)

08:30 – AsiaPES SESSION 1 – SOLAR PHOTOVOLTAIC

Chair: Mr. Stefan Brenner (Germany)
Location: Bhuket AB Room

701-066
New Control for Stand Alone Solar Collector
J.-L. Canaletti, C. Cristofari, G. Notton, P. Poggi, and M. Muselli (France)

701-069
Performance Evaluation of the PV Generator in the PV Microgrid System in Thailand
A. Chimtavee and N. Ketjoy (Thailand)

701-080
Influence of Inverter Dominated Small Energy Producers on the Voltage Stability of Distribution Grids in Steady State
S. Brenner, M. Wolter, and L. Hofmann (Germany)

701-098
Voltage Control in Distribution System with Large Amount of Photovoltaic Generations
S. Sekizaki, M. Aoki, H. Ukai, T. Shigetou, and S. Maru (Japan)

701-143
Operation Characteristic Analysis of MPPT under Varying Irradiance Condition
S.-Y. Kim, N. Kim, H.-G. Lee. C. Hwang. G.-H. Kim, H.-R. Seo, M. Park, and I.-K. Yu (Korea)

701-068
Influence of Accelerate Electron Ray on Photoelectric Properties of AlGaAs-GaAs Solar Cells and Optimization of Solar Cells
M. Sojoudi, R. Madadov, and T. Sojoudi (Iran)

08:30 – AsiaMIC SESSION 7 – CONTROL THEORY

Chairs: Prof. Jie Huang (Hong Kong) and Prof. Ibrahim Sadek (UAE)
Location: Siam B Room

702-011
Cooperative Output Regulation of a Linear Multi-Agent System
Y. Su and J. Huang (PR China)

702-040
Active Vibration Control of Plates Integrated with Distributed Piezoelectric Patches using Optimal Control Approach
I.S. Sadek, I. Kucuk (UAE), and S. Adali (S. Africa)

702-042
Extrapolated Iterative Learning Control (EILC)
H.W. Gomma (Egypt)

702-050
Delay-Distribution-Dependent Synchronization Condition of Lur'e Systems with Sampled Data Control
C. Jeong, J.-m. Song, and P. Park (Korea)

702-053
Avoiding Zero Division by Switching Dissipation in Time Domain Passivity Control
J. Cheng, Y. Ye (PR China), and D. Wang (Singapore)

702-054
Moving Horizon Extrapolated Iterative Learning Control (EILC)
H.W. Gomma (Egypt)

702-086
Time-Scale Separation and Controller Design of Nonlinear Singularly Perturbed Discrete Systems
K.-S. Park and J.-T. Lim (Korea)

702-041
Control of Shunt Active Power Filters using Fuzzy Logic Controller
P. Prasomsak, Kongpol Areerak, Kongpan Areerak, and A. Srikaew (Thailand)

08:30 – Robo/AMSRA TUTORIAL SESSION – "KNOWLEDGE MANAGEMENT IN RESEARCH ORGANIZATION USING STREAM TOOLS"

Presenter: Prof. Alexander Mamishev (USA)
Location: Siam D Room

***Please note that this tutorial is highly interactive and participants are strongly encouraged to bring their laptops to the session.**

Have you ever had to work in large teams to produce a complex document in a short deadline? Unless you and your collaborators have established common ground for utilizing a set of agreed upon strategies, you may lose precious time trying to create a plan of attack. Teams often waste days, creating document parameters like headings or spacing, agreeing on a preferred software package, or even manually typing out automatable text. Combine these inefficiencies with high pressure situations, and this can be the difference between selling a product or losing out to a focused competitor, submitting a research proposal or missing a deadline, having a journal paper accepted quickly or rejected after several review cycles.

Research documents, grant proposals, books, theses, and project reports require intensive collaboration, where a multitude of individuals come together to create a sellable product. When everyone on the team shares the same, predetermined set of practices that improve team dynamics, the process of collaboration speeds up immensely.

We have designed a system of best practices that addresses the shortcomings of team writing. We have a variety of proven techniques to reduce inefficiencies and save professionals money.

The STREAM Tools system is a growing community of professionals who adopt these practices and explore new ways to expand writing efficiency. By attending this tutorial, you will gain access to our growing collection of research templates that will save you time. We will teach you how to use these templates, and how they work into our comprehensive team-oriented framework.

We will also provide a convenient editorial table that reduces the amount of time it takes to correct grammatical errors when reviewing peer-written work.

To get the most out of the workshop, bring your laptop for hands-on exercises:

Comparison of LaTeX, and Microsoft Word, and Power Point

for creation, preservation, and communication of technical information (30 minutes)

How to completely automate numbering and formatting headings, figures, tables, equations and citations in Microsoft Word (30 minutes)

Ways to conveniently share sources between multiple collaborators (30 minutes)

How to maximize Microsoft Word, MathType and EndNote capabilities (30 minutes)

Techniques to eliminate leap-frogging or version confusion (30 minutes)

A system that efficiently makes use of legacy content to eliminate redundant text generation (30 minutes)

This workshop is geared towards Graduate students, engineers, professors, technical and business managers: professionals in academia, industry, and government who frequently write long, complex documents among multiple collaborators. Although the workshop focuses on team-centered writing, individual writers will still find this presentation valuable and a much needed timesaver.

Complex documents can include: research proposals, academic journals, product write-ups, technical reports, patents, self-published work, and more.

Prof. Mamishev graduated with a Ph.D. in Electrical Engineering and Computer Science from MIT with a minor in Technology Commercialization and Management from Harvard Business School and MIT Sloan School of Management. He is an Associate Professor at the University of Washington and Director of the Sensors, Energy and Automation Laboratory (SEAL) as well as the Industrial Assessment Center (IAC).

10:00 – 10:30 – COFFEE BREAK
Location: Siam Foyer

10:30 – AsiaPES SPECIAL SESSION 5 CONTINUED
Location: Siam A Room

10:30 – AsiaPES SESSION 1 CONTINUED
Location: Bhuket AB Room

10:30 – AsiaMIC SESSION 7 CONTINUED
Location: Siam B Room

10:30 – Robo/AMSRA TUTORIAL SESSION CONTINUED
Location: Siam D Room

10:30 – AsiaPES SESSION 8 – POWER SYSTEM PLANNING
Chair: TBA
Location: Siam C Room

701-060
Sustainability Challenges for Electricity Industries in ASEAN Newly Industrializing Countries
P. Vithayasrichareon, I. MacGill (Australia), and T. Nakawiro (Thailand)

701-027
Electricity Generation Portfolio Analysis for Coal, Gas and Nuclear Plant under Future Uncertainties
P. Vithayasrichareon, I. MacGill (Australia), and F. Wen (PR China)

701-055
Effect of Reserve Supplying Demand Response with Payback Characteristics in Optimal Market Scheduling
M. Behrangrad, H. Sugihara, and T. Funaki (Japan)

701-089
Scientific Analysis of Inter-TSO-Compensation-Algorithms by Physically-based Power Flow and Superposition Methods
T. Leveringhaus, M. Wolter, and L. Hofmann (Germany)

701-139
Methodology Development for a Comprehensive and Cost-Effective Energy Management in Public Administrations
S. Capobianchi, F. Martini, L. Andreassi, and V. Introna (Italy)

12:15 – LUNCH BREAK
Location: Coffee House Restaurant

14:00 – AsiaPES KEYNOTE SPEAKER – "LIGHTNING SURGE ANALYSIS BY EMTP AND NUMERICAL ELECTROMAGNETIC ANALYSIS METHOD"
Presenter: Prof. Akihiro Ametani
Location: Siam A Room

The EMTP has been used worldwide for the last 30 years for predictive calculations of over-voltages generated by lightning and switching in the transmission and distribution systems. Existing circuit-theory based approaches such as the EMTP cannot solve a transient involving non-TEM mode propagation, for example, a transient across an archon and a wave-front transient at a transmission tower due to lightning. Also, the circuit-theory based approach has difficulty solving a transient in a complex medium, such as a transient on a grounding electrode and that on a semi-conducting layer of a cable. Furthermore, the circuit-theory approach cannot be applied if circuit parameters are not known.

Recently, the numerical electromagnetic analysis (NEA) method is becoming one of the most promising approaches to solve transient phenomena that can be solved, with great difficulty, by the existing circuit-theory-based simulation tools. The NEA can solve such problems because the NEA calculates Maxwell's equation directly. However, the NEA requires an enormous amount of computer resources, and the accuracy is very much dependent on the cell size, time step and the analytical space of a simulation.

This keynote speech explains modeling methods of EMTP simulations for lightning surges, and summarizes the assumption and application limit of the EMTP together with calculation examples. Also, a brief summary of the NEA methods and application examples are described. Finally, a comparison of the EMTP and NEA simulations is demonstrated.

Prof. Akihiro Ametani received his Ph.D. degree from University of Manchester Institute of Science and Technology (UMIST), Manchester, U.K., in 1973. He was with UMIST from 1971 to 1974, and with Bonneville Power Administration to develop EMTP from 1976 to 1981. He has been a Professor at Doshisha University since 1985 and was a Professor at the Catholic University of Leuven, Belgium in 1988. He was the Director of the Institute of Science and Engineering from 1996 to 1998 and Dean of Library and Computer/Information Center from 1998 to 2001. He was the Vice-President of the IEE Japan in 2003. Dr. Ametani is a Chartered Engineer in the U.K., a Distinguished Member of CIGRE, a Fellow of IET, and a Life Fellow of IEEE. He was awarded a D.Sc.(higher degree in UK) from the University of Manchester in 2010.

14:00 – AsiaMIC SESSION 8 – BIOLOGICAL, MEDICAL, ENVIRONMENTAL, AND ECONOMIC APPLICATIONS

Chair: TBA
Location: Siam B Room

702-017
Do Stock Prices Influence Bank Loans in China?
P. Zhang and D.-j. Kong (PR China)

702-022
A New Adaptive PID Controller for Non-Linear Systems
A.S. Zayed, M. Elfandi, and M. Twiel (Libya)

702-038
Plague Formation at the Left Coronary Artery: Analysis of the Relationship between Arterial Angulations and Hemodynamics
T. Chaichana, Z. Sun, K.K.L. Wong, and J. Tu (Australia)

702-046
Understanding Onsets of Rainfall in Southern Africa using Temporal Probabilistic Modelling
D. Cheruiyot (Kenya) and I.O. Osunmakinde (S. Africa)

702-065
Comparison of Methods for Electromyography Diagnosis using Time Domain Features
V.K. Jain, G. Kaur, and A.S. Arora (India)

14:00 – Robo SESSION 5 – ROBOTICS AND CONTROL

Chairs: Dr. Narong Aphiratsakun (Thailand) and Prof. Jinhua She (Japan)
Location: Siam C Room

703-010
Compact Fuzzy Q Learning for Autonomous Mobile Robot Navigation
H. Wicaksono, K. Anam, P. Hastono, I.A. Sulistijono, and S. Kuswadi (Indonesia)

703-035
Design and Implementation of a PC-based Controller for a New Cable Driven Robot
A. Alikhani, F. Ghahremani (Iran), S. Behzadipour (Canada), and B. Ebrahimi (Iran)

703-002
Global Stabilization of Underactuated TORA based on Equivalent-Input-Disturbance Approach
A. Zhang, T. Liu (PR China, Japan), J. She (Japan), X. Lai, and M. Wu (PR China)

703-033
Hip-Torque Limit for No-Slip Conditions and Estimation of Frictional Coefficients for Legged Robots
D.-H. Shin, Y. Kim, and J. An (Korea)

703-021
Workspace Sensitivity Analysis of Spatial Cable Robots
J. Hamedi, A. Bahrami, and M. Nikkhah-Bahrami (Iran)

703-011
Biped Robot Walking using Central Pattern Generator and Genetic Algorithm
C. Liu, Q. Chen (PR China), and D. Wang (PR China, Singapore)

703-028
Balancing Control and Backlash Compensation of Leg Exoskeleton using Hybrid Jacobian-Fuzzy Control
N. Aphiratsakun and M. Parnichkun (Thailand)

14:00 – AMSRA SESSION 2 – MODELLING, INFORMATION SYSTEMS AND APPLICATIONS
Chair: Prof. Tatyana Avdeenko (Russia)
Location: Siam D Room

704-024
Power Law and Brand Sales Ranking
Y. Jin and J. Chen (PR China)

704-037
Intelligent Technologies in the Problem of Multi-Criteria Decision-Making on Field Tax Audit
T.V. Avdeenko, M.A. Vasiljev, and J.O. Mamenko (Russia)

704-020
Empirical Study on Factors Influencing Attitude of Consumers Shopping on Social Networking Sites
B.J. Shao and Z.X. Gao (PR China)

704-045
Tenant Screening Evaluation for Business Incubator: The Application of an AHP Methodology
N. Somsuk and S. Teekasap (Thailand)

704-022
A Comparative Study of Software Engineering Process Models for Middle East Airlines
H. Sahily and R.A. Haraty (Lebanon)

704-038
The Impact of the May 12 Earthquake on Local Stocks in China
B. Yang (PR China)

15:00 – 15:30 – COFFEE BREAK
Location: Siam Foyer

15:30 – AsiaMIC SESSION 8 CONTINUED
Location: Siam B Room

15:30 – Robo SESSION 5 CONTINUED
Location: Siam C Room

15:30 – AMSRA SESSION 2 CONTINUED
Location: Siam D Room

15:30 – AsiaPES SESSION 3 – RENEWABLE ENERGY AND POWER QUALITY
Chairs: Prof. Manpreet Manna (India) and Prof. Sri Niwas Singh (India)
Location: Siam A Room

701-048
Total Transfer Capability Evaluation of a Power System with Renewable Energy
N. Paensuwan and A. Yokoyama (Japan)

701-059
Analysis, Modeling and Control of Cascaded NPC/H-Bridge Inverter for High Power Quality Grid Connection
T. Wanjekeche, D.V. Nicolae, and A.A. Jimoh (S. Africa)

701-064
Shunt Reactive Compensation for Voltage Dip and Unbalance
F. Welgemoed and J. Beukes (S. Africa)

701-083
Improved Time-based Hysteresis for a Multilevel Inverter based Shunt Active Filter
A. Elnahdy (UAE)

701-123
Significance of Storage and Feasibility Analysis of Renewable Energy with Storage System
M.T. Arif, A.M.T. Oo, A.B.M.S. Ali, and Md.F. Islam (Australia)

701-090
Power Factor Improvement using RNSIC Rectifier
C. Filote, C. Ciufudean, M.V. Micea, and A.-M. Cozgarea (Romania)

701-110
Finite Element Analysis for Performance Prediction of Induction Motor with Broken Rotor Bars
M.S. Manna, S. Marwaha, and A. Marwaha (India)

701-099
Power System Security Enhancement by Optimal Placement of UPFC
J.G. Singh (Thailand), S.N. Singh, S.C. Srivastava (India), and L. Soder (Sweden)

15:30 – AsiaPES SPECIAL SESSION 1 – MICROGRID AND SMART GRID CONTROL

Chair: Dr. Sompob Polmai (Thailand)
Location: Bhuket AB Room

701-085
An Intelligent Control for Distributed Flexible Network Photovoltaic System
S. Park, K. Tanaka, Y. Miura, and T. Ise (Japan)

701-040
Analysis of a Switched-Reluctance Generator for Maximum Energy Conversion
S. Wongguokoon and S. Kittiratsatcha (Thailand)

701-147
Control Scheme of the DC Linked Solar and Gas Engine Hybrid Generation System for Residential Houses
C. Lung, S. Miyake, H. Kakigano, Y. Miura, T. Ise, T. Momose, and H. Hayakawa (Japan)

701-148
Experiment on Fault Current Limiting by a Single-Phase Bridge Type Fault Current Limiter with DC and AC Reactors
N. Sujjapan and S. Polmai (Thailand)

701-146
Robust Frequency Control in the Smart Microgrid by Heat Pump and Plug-In Hybrid Electric Vehicle
C. Rattanapornchai, I. Ngamroo, and S. Vachirasricirikul (Thailand)

16:30 – AsiaMIC SESSION 4 – ROBUST CONTROL
Chair: Dr. Li Xianhong (PR China)
Location: Siam B Room

702-010
Robust Stability of Interval Polynomials and Matrices for Linear Systems
X.H. Li, H.B. Yu, M.Z. Yuan, and J. Wang (PR China)

702-062
Robust Tracking and Disturbance Rejection for Neutral Time-Delay Systems
A. İftar (Turkey)

702-073
Robust Fading Kalman Filter based Nonlinear Error Reduction in a Laser Interferometer
C. Kim, W. Lee, and K. You (Korea)

702-080
Sliding Mode Control for a Pneumatic Proportional Pressure Control Valve
S. Buechner, S. Lambeck, and A. Amthor (Germany)

16:30 – AsiaMIC SESSION 6 – PROCESS, ENERGY, AND POWER SYSTEMS
Chair: Dr. John C.-C. Lu (Taiwan)
Location: Siam D Room

702-034
Building and Configuring a Power Supply in a Remote Lab Experiment
O.H. Graven and D.A.H. Samuelsen (Norway)

702-084
Modelling of Cross-Anisotropic Thermoelastic Stratum due to a Point Heat Source
J.C.-C. Lu, M.-Q. Chen, and F.-T. Lin (Taiwan)

702-087
The Extension of the Node Potential Analysis Algorithm for Simulation of Real Gas Behavior
J. Rüdiger and J. Horn (Germany)

702-090
Golden Ratio in the Fundamental Solutions of Poroelasticity and Thermoelasticity
J.C.-C. Lu and F.-T. Lin (Taiwan)

19:00 – DINNER BANQUET
Location: Rabiang Terrace

Friday, November 26, 2010

08:30 – AsiaPES TUTORIAL SESSION – "SMART POWER SYSTEM ANALYSIS TOOLS FOR SMART GRID"

Presenter: Dr. Komsan Hongesombut (Thailand)
Location: Siam A Room

With the advent of smart grid, the grid needs to be smarter and needs to move operation of distribution networks toward a more active management manner. Successful applications for smart grid require an enterprise level system perspective which views generations and loads as an integrated and autonomous subsystem. The smart grid is a complex network system that must operate in diverse and often challenging environments that combine very large complex facilities with vast number of intelligent devices such as smart meters. To support these needs, many sophisticated software tools are used for interoperating. Utility companies responsible for secure power system operation need to model their systems and parts of their systems actively in support of control, security and economic functions. To do this, they need to exchange system modeling information with one another. Unfortunately, the existing model exchange formats derive from planning models that are bus/branch oriented and lack details required for control center operations. The information needed for real-time power system operation requires far greater detail about field equipment and its connectivity. These models, referred to as a node/breaker model, must include the substation bus segments, breakers, and measurement details. Recently, the Common Information Model (CIM) has been established as a common language and domain model. The CIM can be used to share and exchange information models among different applications across operations and planning platforms in utility companies. The CIM can save time spent on developing adapters which can be used to improve the applications.

This tutorial discusses the CIM and its benefits on a current power system analysis tools as the CIM trend will become standard in many power system analysis tools. Examples using CIM are shown for energy management systems (EMS) interface, loadflow interface, transient stability interface and advanced model integration.

• To introduce the concept of using CIM to Smart Grid applications

• To provide the solutions in the established practice of power system data sharing and exchange which are required for future Smart Grid applications.

• To demonstrate some real examples of using CIM to enhance the capability of existing power system analysis software.

The tutorial is designed for a general audience who is new to the area of Common Information Model (CIM). Experience in Smart Grid design and in general and basic knowledge in power system analysis and modeling in particular, is preferable, but not necessary. Participants with a background in power system modeling, and power system application design will be able to apply readily what they learn in comparison to their own experiences, which is always beneficial.

Dr.Komsan Hongesombut obtained his B.Eng degree in Electrical Engineering with first class honors in 1997 and his M.Eng degree in Electrical Engineering in 1999 from King Mongkut's Institute of Technology Ladkrabang, Thailand, respectively. In 2003, he obtained his Ph.D in Electrical Engineering from Osaka University, Japan. From 2003-2005, he was a post-doctoral fellowship, funded by the Japan Society for the Promotion of Science (JSPS), at the Department of Electrical Engineering of Kyushu Institute of Technology, Japan. From 2005-2009, he was a specialist in power system at Power System Technology Group in Electric Power Engineering R&D Center of Tokyo Electric Power Company, Japan. Dr. Komsan has experiences in researches and projects with TEPCO in the field of capability enhancement of integrated power system analysis program and published several papers in Japan. Currently, he is a lecturer at the Department of Electrical Engineering at Kasetsart University, Thailand. He published several papers in IEEE conferences and journals in the related fields. His research interests include the development of power system analysis tools for large-scale power system, power system modeling, power system dynamics, controls and stability and smart grid.

08:30 – AsiaMIC SESSION 9 – MODELLING AND IDENTIFICATION

Chair: Prof. Robin De Keyser (Belgium)
Location: Siam D Room

702-006
A Comparative Study of Three Relay-based PID Auto-Tuners
R. De Keyser and C. Ionescu (Belgium)

702-012
Decentralized Input-Constraint Trackers for Unknown Large-Scale Interconnected Sampled-Data Systems with State Delay
Y.-Y. Du, J. S.-H. Tsai, Y.-H. Chen, S.-M. Guo (Taiwan), and L.-S. Shieh (USA)

702-013
Modeling of Decentralized Observers and Trackers for Large-Scale Singular System with Time Delay and Closed-Loop Decoupling Property
J.S.-H. Tsai, S.-J. Pan, W.-C. Liao, S.-M. Guo (Taiwan), and L.-S. Shieh (USA)

702-078
Frequency Response Identification of a Six-DoF State-Space Model for Coaxial Helicopter
P. Liu and Z. Wu (PR China)

702-085
Model Identification for Batch Esterification Process to Produce Citronellyl Laurate
S.A. Zulkeflee and N. Aziz (Malaysia)

702-093
Ethno-Grid, A Supporting Technology for E-Culture
S. Cahya and H. Suhartanto (Indonesia)

08:30 – AsiaMIC SESSION 2 – MODELLING AND SIMULATION

Chair: Prof. Herwig Unger (Germany)
Location: Siam B Room

702-018
The Design of the Feedback Systems by Means of the Modeling and Optimization in the Program VisSim 5.0/6
V. Zhmud, A. Liapidevskiy, and E. Prokhorenko (Russia)

702-020
Numerical Simulation and Role of Noise in the Cahn-Hilliard-Cook Equation below the Critical Dimension
K.A. Hawick (New Zealand)

702-023
Bridging Overloaded Nodes in an Overlay Network by Long Distance Links
L.-o. Lertsuwanakul, H. Unger (Germany), N. Mututanon, and P. Kajadsarapadpai (Thailand)

702-033
Using a Remote Lab for Real Physical Measurements on an Electric Motor
D.A.H. Samuelsen and O.H. Graven (Norway)

702-045
Simplified Conducted Electromagnetic Interference Prediction for DC-DC Converters
V. Tarateeraseth (Thailand)

702-055
A Flexible Architecture for Crowd Simulation
W. Lefer (France)

702-068
CrowdSim: A Model and a Simulation Framework for Dense Crowds
S. Gorlatch, C. Hemker, O. Scharf, F. Blanke, T. Priebs, C. Bartenhagen, A. Ploss, D. Meilaender, and S. Westerheide (Germany)

702-079
Finite Element Simulation of Forces in Strips Tying Metal Sheet Coils
V.N. Lê and H. Champliaud (Canada)

702-089
On Scheduling Algorithm for End-to-End QoS over IEEE 802.16 Mesh Networks
J.-H. Jeon, H.-J. Lee, T. Kim, C.-W. Park, and J.-T. Lim (Korea)

08:30 – Robo TUTORIAL SESSION – "FRINGING ELECTRIC FIELD SENSORS"

Presenter: Prof. Alexander Mamishev (USA)
Location: Siam C Room

Fringing electric field sensors are used for a variety of robotics and automation applications. Relatively capacitive sensors are common for measurement of levels of fluid volumes, proximity detection, and location of cracks and discontinuities. More complex dielectric sensors are used for measurement of material properties, thickness of layers, determination of aging status of electrical insulation, and estimation of moisture dynamics. Yet more complex multi-electrode systems are used for soft-field tomography, which allows visualization of industrial flows and human body. Distributed sensor arrays are placed on robot surfaces to emulate functions of skin: detection of pressure, shear stress, humidity, and temperature. This tutorial will cover basics of design of sensor systems that use fringing electric fields.

* History of fringing electric field sensing (30 minutes)
* Geometry of simple and multi-electrode systems (30 minutes)
* Selection of measurement instrumentation (30 minutes)
* Broadband dielectric measurements (30 minutes)
* Sensors based on pre-concentrators (30 minutes)
* Sensitive skin for robots (30 minutes)

Technical professionals interested in integration of sensor technology into a variety of robotic applications.

Prof. Mamishev graduated with a Ph.D. in Electrical Engineering and Computer Science from MIT with a minor in Technology Commercialization and Management from Harvard Business School and MIT Sloan School of Management. He is an Associate Professor at the University of Washington and Director of the Sensors, Energy and Automation Laboratory (SEAL) as well as the Industrial Assessment Center (IAC).

10:30 – 11:00 – COFFEE BREAK

Location: Siam Foyer

11:00 – AsiaPES TUTORIAL SESSION CONTINUED

Location: Siam A Room

11:00 – AsiaMIC SESSION 2 CONTINUED
Location: Siam B Room

11:00 – Robo TUTORIAL SESSION CONTINUED
Location: Siam C Room

12:00 - LUNCH BREAK
Location: Coffee House Restaurant

14:00 – AsiaPES SPECIAL SESSION 3 – ARTIFICIAL INTELLIGENCE IN SMART POWER AND ENERGY SYSTEMS
Chair: Dr. Somyot Kaitwanidvilai (Thailand)
Location: Siam D Room

701-155
Behavior of Winding to Ground Fault in Transformer Windings using Discrete Wavelet Transform
C. Pothisarn, A. Ngaopitakkul, W. Pongchaisrikul, C. Apisit, and S. Jonpermpoonpol (Thailand)

701-151
Design of Robust Control and Monitoring System for Stabilization of Frequency Fluctuation in a Microgrid System
S. Vachirasricirikul, I. Ngamroo, and S. Kaitwanidvilai (Thailand)

701-152
Robust Load Frequency Control for Two Area Interconnected Power System using GA
C. Koisap, S. Kaitwanidvilai, and I. Ngamroo (Thailand)

701-149
Microgrid Stabilization using Controllable Electrolyzer & Fuel Cell based on Bee Colony Optimization of Fuzzy-PID Controller
T. Chaiyatham and I. Ngamroo (Thailand)

701-150
Robust Loop Shaping Control for Designing High Performance ACMC DC-DC Converter
S. Kaitwanidvilai and P. Olranthichachat (Thailand)

701-154
Study Characteristics for Simultaneous Faults in Electrical Power Systems based on Wavelet Transform
A. Ngaopitakkul and C. Apisit (Thailand)

14:00 – AsiaPES SESSION 5 – POWER SYSTEM STABILITY AND CONTROL

Chair: Mr. Qinglai Guo (PR China)
Location: Siam D Room

701-010
On the Expansion of Stability Region Estimation
F. Liu, W. Wei, and S. Mei (PR China)

701-057
Equivalence of Three Methods for Computing Small-Signal Stability Boundaries for Power Systems
F. Liu, D. Zhang, S. Yang, S. Mei, and G. He (PR China)

701-058
Bidirectional Interaction based Coordinated Voltage Control System for Hierarchical Electrical Power Control Centers
B. Wang, Q. Guo, H. Sun, H. Li, J. Luo, B. Zhang, and W. Wu (PR China)

701-061
Polynomial Approximation of Small Signal Stability Region Boundary in Parameter Space
S. Yang, F. Liu, D. Zhang, S. Mei, and G. He (PR China)

701-138
Damping Power System Oscillation in Critical Conditions using UPFC
D. Mostafa Tobnaghi, P. Farhadi, B. Najafi, M. Karimi, and M. Toloei (Iran)

701-025
Robust Single Machine Infinite Bus with UPFC Connected to a Transmission Line
G.P. Yuma, J.L. Munda, and K. Kusakana (S. Africa)

701-047
A New Coordinated Control Scheme of PSS and SVC for Enhancing Power System Stability
C. Jakpattanajit, N. Hoonchareon (Thailand), and A. Yokoyama (Japan)

14:00 – AsiaMIC SPECIAL SESSION 1 – ADVANCED MATHEMATICAL AND STATISTICAL MODELS FOR SUSTAINABLE DEVELOPMENT

Chair: Prof. Philippe Lauret (France)
Location: Siam B Room

702-094
Volatility of Wind Energy using High Frequency Data
M.R. Agrawal, J. Boland, and B. Ridley (Australia)

702-095
Advanced Tools for Wind Power Integration into Electrical Networks
R. Blonbou, S. Monjoly, and R. Calif (France)

702-099
Stochastic Differential Equation for Modeling Global Solar Radiation Sequences
T. Soubdhan and R. Emilion (France)

702-096
New Methodology for the Prediction of Global Solar Radiation: The Case of Corsica Island
C. Cristofari, M. Muselli, P. Poggi, and J.-L. Canaletti (France)

702-098
Intermittency Model for Surface Layer Wind Speed Fluctuations: Applications to Short Term Forecasting
R. Baile, J.-F. Muzy, and P. Poggi (France)

14:00 – Robo SESSION 2 – AUTOMATION AND MANUFACTURING
Chair: Dr. Arvid Amthor (Germany)
Location: Siam C Room

703-001
Fourth Order Motion Profile Planning for High Precision Applications
A. Amthor, A. Lorenz, S. Zschaeck, and C. Ament (Germany)

703-003
Flexible Part Feeding with the Aerodynamic Centrifuge - Distribution of Pressure and Design Implications
T. Frädrich and P. Nyhuis (Germany)

703-043
Cooperative Motion of Two Robot Arms for Manipulating Flexible Display
T.S. Liu and S.C. Yu (Taiwan)

703-019
Tool Path Planning Technique for Robot Plasma Spray Coating on Duct Component
N. Aroonchote, N. Naksuk, N. Depaiwa (Thailand), and H. Yamaura (Japan)

703-020
Camber Detection Algorithm using the Image Stitching Technique in Hot-Rolling Process
J.W. Yoo, N.W. Kong, J.-m. Song, and P. Park (Korea)

15:40 – 16:10 – COFFEE BREAK
Location: Siam Foyer

16:10 – AsiaPES SESSION 5 CONTINUED
Location: Siam D Room

16:10 – AsiaPES SESSION 6 – POWER SYSTEM PROTECTION AND METERING
Chair: Assc. Prof. Yasser Monir (Egypt)
Location: Siam A Room

701-006
Neural Network based Adaptive Overcurrent Directional Protection in Large Electrical Power Networks
N.H. El-Amary, Y.G. Monir, and T. Youssif (Egypt)

701-030
Frequency Dependent Auto Load Shedding Scheme to Prevent Frequent Blackouts in Bangladesh Power System
Q. Ahsan, A.H. Chowdhury, S.S. Ahmed, I.H. Bhuyan, A. Haque, and H. Rahman (Bangladesh)

701-041
Optimal Placement of PMU using Improved Tabu Search for Complete Observability and Out of Step Prediction
A.M. El-Zonkoly, S. El-Safty, and R. Maher (Egypt)

701-050
Design, Fabrication and Testing of Transformer Static Differential Relay Circuit with Harmonic Blocking
Hemamala B. R., B.Jayashree, and Jangamshetti S. H. (India)

701-053
Development of an Integrated and Networked Digital Metering System for AC Power Distribution
L.G. Krishnamurthy, N. Raghuprakash, and S.H. Jangamshetti (India)

16:10 – AsiaMIC SESSION 10 – FILTERING, ESTIMATION, AND OPTIMIZATION

Chair: TBA
Location: Siam B Room

702-025
Real Time Digital Super-High Accuracy Vibrations Measurements: Methods, Devices and Mathematical Modeling for the Metrology
V. Zhmud and A. Liapidevskiy (Russia)

702-026
Design of First Order Complementary Filter using the Least Square Method
J.H. Yun, H.G. Min, S.-H. Kwon, and E.T. Jeung (Korea)

702-027
Wheeled Mobile Robot Control using Inertial Sensor
J.H. Kim, H.G. Min, S.-H. Kwon, and E.T. Jeung (Korea)

702-032
Geometric Optimal Design of an ATC Arm using Design of Experiments
J.-H. Kim, C.-M. Lee, and M.-J. Lee (Korea)

702-072
TDOA/AOA based RFID Indoor Geolocation using Indirect Kalman Filter
D. Kim, H. Shao, and K. You (Korea)

16:10 – Robo SESSION 4 – MECHANICS ANALYSIS AND DESIGN

Chair: Dr. Phongsaen Pitakwatchara (Thailand)
Location: Siam C Room

703-055
Development of Rescue Robot with Expandable Side Crawler
G. Hirano and S. Furuno (Japan)

703-045
Mechanical Design and Implementation of a Sociable Companion Robot
H. Wei, N. Li, Y. Tao, S. Zheng, and W. Cao (PR China)

703-044
Design and Simulation of a Biologically Inspired Hexapod Robot using SimMechanics
U. Asif and J. Iqbal (Pakistan)

703-005
Analysis and Modeling of the Cable-Pulley Power Transmission System in Robots
P. Pitakwatchara (Thailand)

703-029
Dynamic Stress Analysis of a Spring Actuated Manipulator with Tip Payload
P. Persad, K. Loutan Jr., and C. Maharaj (Trinidad)

706-079
Development and Experimentation of an Autonomous Vehicle Platoon for Urban Environments
M. Parent, P. Petrov (Bulgaria), and C. Boussard (France)

Saturday, November 27, 2010

07:30 – KOH PHI PHI ISLAND BY SPEEDBOAT DAY TRIP

Meeting Place: Novotel Phuket Resort Lobby

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IASTED would like to thank you for attending IASTED Technology and Management Conferences 2010. Your participation helped make this international event a success, and we look forward to seeing you at upcoming IASTED events.

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