Contents

Application of Artificial Intelligence (AI) in Power System Control – Invited Session
Organizer: Hiedar Ali Shayanfar and Hossien Shayeghi (Iran)


Setayesh Nazar, Mehrdad; Javidi, H. (Iran): "Optimal Reconfiguration of Power System with Fuzzy ARTMAP Neural Networks"

Shayanfar, H. A.; Tabatabaei, N. M.; Mokhtarpour, A. (Iran): "Modified Strategy for Unified Power Quality Conditioner (UPQC) Based on Intelligent Devices"

Shayanfar, Heidar Ali; Karami, Mehdi; Salmasi-Asl, Yvette Sevoyan (Iran): "Application of Artificial Neural Networks as a State Selector in Direct Power Control of DSTATCOM for Voltage Flicker Mitigation"

Shayeghi, Hossein; Shayanfar, Heidar Ali; Jalili, Aref (Iran): "Fuzzy PI Type Controller for Load Frequency Control Problem in Interconnected Power System"

Shayeghi, Hossein; Shayanfar, Heidar Ali; Sivandian, Masoud (Iran): "Decentralized LFC Design Using ANN Technique Based on Mixed H2/H∞ Robust Control in a Deregulated Electric Power System"

Business Process Modelling - Invited Session
Organizer: Mohamed Loutfi (UK)

El-Gayar, Omar F.; Fritz, Brian D. (USA): "Environmental Management and the Role of Information Systems"

Loutfi, Mohamed; Alqirem, Raed (UK): "Management Flight Simulator: A Comparative Analysis"


Salampasis, Michail *; Kouroupetrouglou, Christos *; Manitsaris, Athanasios *; Loutfi, Mohamed ** (* Greece, ** UK): "BrowserTree: a Specialized Voice Web Browser for Blind People Modelling Hierarchical Structure of Web Pages" 59

**Intelligent Systems: Tools and Control - Invited Session**

**Organizer: Nafisa Yusupova (Russian Federation)**

Bugaev, Alexander; Guzairov, Murat; Yusupova, Nafisa; Shakhmamedova, Gyuzel (Russian Federation): "Expert Systems: Developments in Russian Federation" 65

Guzairov, Murat; Ilyasov, Barry; Ismagilova, Larisa; Valeeva, Roza (Russian Federation): "Intelligent Control of Planning and Product Realization Processes in Competitive Market Conditions" 70

Kovács, George L. *; Drozdik, Sylvester *; Zuliani, Paolo **; Succi, Giancarlo ** (* Hungary, ** Italy): "Using Open Source Software in the Public Administration" 75

Melnikov, Andrey; Khlopotov, Mikhail (Russian Federation): "Various Ontology Application Cases" 81

Popov, Denis; Rizvanov, Dmitry; Sjuntjurenko, Oleg; Yusupova, Nafisa; Khisamutdinov, Ruslan (Russian Federation): "Intelligent Tools to Research Plan Development" 83

Vasilyev, Vladimir *; Valeyev, Sagit *; Sun, Jianguo ** (* Russian Federation, ** China): "Identification of Complex Technical Objects on the Basis of Neural Network Models and Entropy Approach" 89

Woern, Heinz; Yigit, Sadi (Germany): "Control Architecture for Tactile Co-Operation between Human and a Humanoid Robot" 94

**Optical Wireless Communications - Invited Session**

**Organizer: Svetla Jivkova and Mohsen Kavehrad (USA)**


**Prospects and Techniques for Eddy-Resolving Acoustic Tomography in the Eastern Gulf of Mexico - Invited Session**

**Organizer: Jerald Caruthers and Donald Roman (USA)**

Caruthers, Jerald W.; Roman, Donald A.; Sidorovskaia, Natalia A.; Vinogradov, Sergey (USA): "Prospects and Techniques for Eddy-Resolving Acoustic Tomography in the Eastern Gulf of Mexico" 106
Hogan, Patrick J. (USA): "High Resolution Modeling of the Gulf of Mexico"


Sidorovskaia, Natalia A.; Tashmukhanbetov, Arslan; Ioup, George E.; Ioup, Juliette W.; Newcomb, Joal J.; Stephens, James M.; Walker, Christopher D.; Rayborn, Grayson H. (USA): "Littoral Acoustic Demonstration Center: Experimental and Modeling Capabilities for Assessment of the Environmental Impact of Acoustic Sources in the Gulf of Mexico"

Vera, Michael D. (USA): "Numerical Simulation of Long-Range Acoustic Propagation in the Ocean and Ocean Acoustic Tomography"

Yaremchuk, Max; Nechaev, Dmitri (USA): "A Dynamically Constrained Algorithm for Inverting Acoustic, Remotely Sensed and in Situ Data in an Ocean Region with Open Boundaries"

Real-Time Power System Analysis - Invited Session
Organizer: Jinboo Choo and Rick Kuffel (South Korea)

Espíritu Santo, Sergio do *; França, Victor Alexandre Belo *; Brandi, Eduardo de Medeiros *; Meiklejohn, Heather ** (* Brazil, ** Canada): "FURNAS Strategy Regarding Real-Time Tests: A Practical Case-Campos Static VAr Compensator"

Kuffel, Rick; Maguire, Trevor; Zhang, Yi (Canada): "Recent Developments in Digital Real Time Simulation for Power Systems"

Lee, W. H.; Lee, Jin (South Korea): "A Study of the Switching Surges in a Vacuum Circuit Breaker Using the PSCAD/EMTDC"

Park, Jungsoo; Jang, Gilsoo; Son, K. M. (South Korea): "An Investigation of the Impact of Multiple FACTSs on the Power System Dynamics Using Current Injection Method"

Shin, Jeonghoon; Cha, Seungtae; Kim, Taeckyun; Kwak, Bangmyung; Choo, Jinboo (South Korea): "Application of a Digital PSS to 220MVA Pumped Storage Unit and its Validation Using Real-Time Digital Simulator"

Superconducting Infrared and Terahertz Sensors - Invited Session
Organizer: Annick Degardin and Alain Kreisler (France)

Febvre, P.; Rousset, J. G. (France): "Current Distribution and Magnetic Diffraction Patterns of SIS Mixers Based on Multiple Junctions"

Gol'tsman, Gregory N.; Vachtomin, Yuriy B.; Antipov, Sergey V.; Finkel, Matvey I.; Maslennikov, Sergey N.; Smirnov, Konstantin V.; Polyakov, Stanislav L.; Svetchnikov, Sergey I.; Kaufova, Natalia S.; Grishina, Elisaveta V.; Voronov, Boris M. (Russian Federation): "Low-Noise NbN Phonon-Cooled Hot-Electron Bolometer Mixer for Terahertz Heterodyne Receivers"

Hao, L. *; Josephs-Franks, P. *; Gallop, J. C. *; Macfarlane, J. C. *; Lam, S. K. H. **; Foley, C. P. ** (* UK, ** Australia): "Particle Sensor Based on Nano-Scale SQUIDs"

Kreisler, Alain J.; Dégardin, Annick F.; Guillet, Bruno; Villégier, Jean-Claude; Chaubet, Michel (France): "High-Tc Superconducting Hot Electron Bolometers for Terahertz Mixer Applications"

Schultz, Jonathan; Lichtenberger, Arthur; Weikle, Robert; Lyons, Christine; Bass, Robert; Bryerton, Eric; Pan, Shing Kuo; Groppi, Christopher; Kooi, Jacob; Walker, Christopher (USA): "Application of Ultra-Thin Silicon Technology to Submillimeter Detection and Mixing"

Semenov, Alexei *; Richter, Heiko *; Hübers, Heinz-Wilhelm *; Ilin, Konstantin *; Siegel, Michael *; Engel, Andreas ** (* Germany, ** Switzerland): "Current-Noise Superconducting Bolometer for Terahertz Waves"

Applications of Fuzzy and Informatics in Environmental and Safety Engineering Field

Baek, Jong-Bae *; Ham, Byung-Ho *; Bae, Sejong ** (* South Korea, ** USA): "Safety Climate Assessment and Its Relation to Reliability in Korean Manufacturing Plants"

Park, JooSik *; Singh, Karan P. ** (* South Korea, ** USA): "A Study on the Fuzzy-FTA Under Unpredictability Fault Information"

Park, JooSik *; Lim, ChongGyu *; Bae, Sejong ** (* South Korea, ** USA): "Development of Fuzzy Expert System for Effective Sewage Disposal Control Unit"

Uhm, Min-Yong *; Bae, Sejong **; Singh, Karan P. ** (* South Korea, ** USA): "Occupational Exposure to Nitrous Oxide in Operating Room Nurses"

Applications of Informatics and Cybernetics in Science and Engineering

Elmahboub, W. M.; Scarpace, F.; Smith, B. (USA): "Degradation of Aerosols through Mathematical Modeling Algorithm to Improve the Utility of Remote Sensing Data"

Itoyama, Kagehiro; Kamizono, Kohtaro (Japan): "On the Association Entropy as a Function of Time"

Jung, Namsu; Lee, Jeongjae (South Korea): "Development of an Information Measure Model for Quantifying Irregular Data"
Magoma, G. N.; Wachira, F. N. (Kenya): "Biodiversity Prospecting in Plant Genomes. A Comparative Study in *Camellia Sinensis* Using RAPDs, Catechins and Caffeine" 206

Tsyrenzhapov, Arsen V.; Nikolayev, Sergey M.; Chehirova, Galina V. (Russian Federation): "Research of Polarizing Properties of the Biliary Acid by Laser Ellipsometry" 211

Xiao, T. D.; Ma, X. Q.; Zhang, H.; Reisner, D. E.; Raj, P. M.; Wan, L; Tummala, R. (USA): "Magnetic Nocomposite Paste: An Ideal High- \( \mu \), \( k \) and \( Q \) Nanomaterial for Embedded Inductors in High Frequency Electronic Applications" 217


**Control Systems, Technologies and Applications**

Kleinkes, M.; Lilienthal, A.; Winkler, W. (Germany): "Static and Dynamic Accuracy and Process Capability Tests for Industrial Robots" 228

Miranda, Francisco (Portugal): "The "Peak" Effect in Guidance Stabilization" 233

**Image, Acoustic, Speech and Signal Processing**

Ayeche, Farid; Bennmahamed, Khier (Algeria): "Face Detection in Video" 238

Mashao, Daniel J.; Majola, Julia (South Africa): "An Implementation of an IsiZulu Text to Speech System" 244

**Nanotechnology: Materials, Metrology and Devices**

Moeck, Peter; Seipel, Bjoern; Qin, Wentao; Mandell, Eric; Fraundorf, Philip (USA): "Fringe Fingerprinting and Transmission Electron Goniometry, Supporting Image-Based Nanocrystallography in Two and Three Dimensions" 249

Moeck, Peter (USA): "Updated Reviews: Atomic Ordering in Epitaxial Semiconductor Quantum Dots & Void-Mediated Formation Mechanism in their Endotaxial Counterparts" 255

Nowak, Derek B.; Krug, John T.; Xie, X. Sunney; Sánchez, Erik J. (USA): "Pushing the Limits of Near-Field Microscopy" 261

**Smart Materials and Intelligent Structures**

Daneshmehr, Alireza; Daneshmehr, Mohammad; Asadi, Mohtaram (Iran): "Response Behavior of Smart Thick Laminated Cylinder Based on Theory of Elasticity" 267

Daneshmehr, Alireza; Asadi, Mohtaram; Ahangar Davoodi, Mojgan (Iran): "Elasticity Theory Analysis of Multi-Layered Shallow Panels With Piezoelectric Sensors Under Dynamic Load" 273
Daneshmehr, Alireza; Alikhani, Alireza (Iran): "Three-Dimensional Elasticity Study of Piezoelectric Actuators Vibration Embedded on the Shell Panel Composites" 279

Daneshmehr, Alireza; Asadi, Mohtaram; Daneshmehr, Mohammad (Iran): "Elasticity Solution for Static Analysis of Intelligent Panel Structures" 284

Smart Sensor Systems: New Capabilities and Innovative Applications


Feng, Dengchao *; Dias Pereira, J. M. ** (* China, ** Portugal): "The Application of Ultrasonic Sensors in Smart Flowmeters" 297

Qin, Jianmin; Han, Zhennan; Dou, Yinke; Cui, Huaibe; Chi, Huanying (China): "The Ice Thickness Sensor Based on Electric Conduction Characteristic of Air, Ice and Water" 302

Yang, PanHong; Wu, XiaoJia (China): "An Application of Multi-Sensor Data Fusion Technology on Intelligent Control of Greenhouse" 306

Applications and Impact of FOSS and OTC in Business

Gallen, Craig; Reeve, Jeff (UK): "The OpenOSS Project – An Open Source Operations Support Lab for the Telecommunications Industry" 311


Applications and Impact of FOSS and OTC in Governments

Abraham, Blanca; Aguilar, Jose; Vivas, Ingrid; Leon, Leandro; Teran, Oswaldo (Venezuela): "Vision of Endogenous Development Based on Free Software" 323

Inaba, Kiyotaka; Volmat, Alain; Ouchi, Shigeki (Japan): "Design of Linux Friendly Digital Camera" 326

FOSS Technologies, Methodologies, Projects, Products, Tools and Services

Frattolillo, Franco; D'Onofrio, Salvatore (Italy): "A Free Programming Framework to Support Highly Dynamic Distributed Computing" 332

Goh, Seow Hiong (Singapore): "Considering Open Source and Commercial Software" 338

Jung, Thomas; Hadler, Horst; Kellner, Michael (Germany): "ORCAN: An Open Component Framework, and its Application to the Development of Complex Simulation Software" 345
Liu, Chao; Baba, Takaaki (Japan): "A Design of TCP Module with Multiple Congestion Windows in Network Simulator2"

Energy and Control Technologies

Falcioni, P.; Minni, F.; Scaradozzi, D. (Italy): "Innovative Techniques to Maximize Energy Savings in a Domestic Environment"

Fani, Maryam; Farhanieh, Bijan; Mozafari, Ali Asghar (Iran): "Process Integration of Pulp and Paper Mill Based on the New Pinch Technology and Dynamic Simulation for Saving Energy"

Radziukynas, Virginijus; Nemura, Antanas (Lithuania): "Research of Electric Power System (EPS) Static Characteristics' Parameters Estimation"


Energy and Information/Communication Technologies

Nakui, Yukihide; Nishino, Tetsuro; Okubo, Seiya (Japan): "On the Minimization of the Depth of Certain Quantum Circuits"

Tango, Hiroyuki; Suganuma, Masayuki; Usami, Gen; Nogami, Yuki; Yajima, Toshihisa (Japan): "Hot-Carrier Reliability in Low-Temperature N- and P-Channel Poly-Si TFTs for Active-Matrix Liquid-Crystal Displays (AM-LCDS)"

Energy Systems/Technologies

Akhanda, Abdur R.; Chowdhury, Ashfaque Ahmed (Bangladesh): "Recent Solar Energy Activities in Bangladesh"

Chen, Qingyun; Bin, Yuezhen; Koganemaru, Ai; Shiozaki, Hideki; Matsuo, Masaru (Japan): "Electrochemical Intercalation of Lithium into Open-End Multi-Wall Carbon Nanotubes Well-Oriented on a Copper Foil"

Dispenza, Antonella; La Rocca, Vincenzo; Morale, Massimo; Panno, Domenico (Italy): "Energy Saving with Absorption Equipment: A Case Study"

Fukase, Masa-Aki; Sato, Tomoski (Japan): "Low Energy Digital Electronics for Multimedia Ubiquitous Environments"

Platt, Glenn; James, Geoff (Australia): "Multi-Agent Systems in Distributed Energy Networks"