Monday, October 4, Morning Plenary	
Room:	Imperial East - Third Floor
Committee	**Industrial Automation and Control**
8:00 AM	**IAS01p01** ***Intelligent Coordinated Control of a Wind Farm and Distributed SmartParks*** Pinaki Mitra, Missouri University of Science and Technology, United States; and Ganesh Kumar Venayagamoorthy, Missouri University of Science and Technology, United States
Committee	**Power System Engineering**
8:30 AM	**IAS01p02** ***Arc Flash Personal Protective Equipment - Applying Risk Management Principles*** Daniel Roberts, Schneider Electric, Canada
Committee	**Power System Engineering**
9:00 AM	**IAS01p03** ***To Bond Or Not To Bond: That Is The Question*** Massimo Mitolo, Chu & Gassman, United States; Fabio Freschi, Politecnico di Torino, Italy; and Michele Tartaglia, Politecnico di Torino, Italy
Committee	**General Applications in Industry**
9:30 AM	**IAS01p04** ***Hybrid AC/DC Power System for Zero Energy Buildings of the Future*** Liang Downey, Nextek Power Systems, United States
10:00 AM	**BREAK**
Committee	**General Applications in Industry**
10:30 AM	**IAS01p05** ***The More Efficient Aircraft - Leveraging Electrical Power Conversion Technology to Build Better Aircraft*** Mark Harris, Hamilton-Sunstrand, United States
Committee	**Electrostatic Processes**
11:00 AM	**IAS0106** ***A Century of Development in Applied Electrostatics*** G.S.P. Castle, University of Western Ontario, Canada

Room:	Arboretum 1 & 2	Arboretum 3 & 4	Cottonwood
Committee:	**Electrostatic Processes**	**Industrial Automation and Control**	**Metals Industry**
	Session 2: Nano- and Micro-Electrostatic Processes **Session Chair**: Shesha Jayaram, University of Waterloo, Canada **Session Organizer**: Rajesh Sharma, Arkansas State University Jonesboro, United States	**Session 3**: Smart Management of Renewable Energy Systems **Session Chair**: Ganesh K. Venayagamoorthy, Missouri University of Science and Technology, United States **Session Organizer**: Marcelo G. Simoes, Colorado School of Mines, United States	**Session 5:** Rolling, Process Line, Measurement, Metal Working **Session Chair**: Thomas J. Dionise, Eaton Electrical, United States **Session Organizer**: S. Douglas Cromey, Novelis Inc., Canada
02:00 PM	**IAS02p01** ***Organic/inorganic hybrid photovoltaic cells based on substitutionally doped single wall carbon nanotubes*** Alexandru Biris, Viney Saini, Zhongrui Li, Thikra Mustafa, Shawn Bourdo, Tito Viswanathan, University of Arkansas at Little Rock, United States; Steven Trigwell, NASA Kennedy Space, United States; Cyril Boyer, and Julien Rioux, Ecole d'Ingenieurs du CESI-EIA, France	**IAS03p01** ***Control study of Fuel Cell, Battery and Solar Hybridization Power Sources*** Becherif Mohamed, FC-Lab fuel Cell Laboratory, France; Ayad Mohamed-Yacine, IEEE Member, France; and Wack Maxime, SeT Laboratory, France	**IAS05p01** ***A Control Method for Improvement in the Tandem Hot Metal Strip Rolling Process*** John Pittner, University of Pittsburgh, United States; and Marwan A. Simaan, University of Central Florida, United States
02:30 PM	**IAS02p02** ***Development of surface engineered nanostructured photo-anodes for enhanced photo electro-chemical processes*** Rajesh Sharma, Arkansas State University, United States; Hidetaka Ishihara, Alexandru Biris, ; and Malay Mazumder, University of Arkansas at Little Rock, United States	**IAS03p02** ***Simple Control System for a Switcher Locomotive Hybrid Fuel Cell Power System*** Donald Zinger, Northern Illinois University, United States; Karthik Yedavali, Northern Illinois University, United States; and Liping Guo, Northern Illinois University, United States	**IAS05p02** ***Chock Temperature Supervision Wireless System for a Tandem Cold Mill*** Juan M Lopera, Universidad de Oviedo, Spain; Andrea Diaz Fernandez, Universidad de Oviedo, Spain; Pablo Baizan, Tecnología Inalambrica para la Industria, Spain; Jose Luis Rendueles, ArcelorMittal, Spain; Jesus M Perez Pereira, ArcelorMittal, Spain; and Laura Ema, ArcelorMittal, Spain
03:00 PM	**IAS02p03** ***Investigation of the Optimum Electric Field for a Stable Electrospinning Process*** Chitral Angammana, University of Waterloo, Canada; and Shesha Jayaram, University of Waterloo, Canada	**IAS03p03** ***Sensorless Power Maximization of PMSG based Isolated Wind-Battery Hybrid System Using Adaptive Neuro-Fuzzy Controller*** Mukhtiar Singh, Ecole de Technology Superieure, Universite du Quebec, Canada; Ambrish Chandra, Ecole de Technology Superieure, Universite du Quebec, Canada; and Bhim Singh, Indian Institute of Technology, India	**IAS05p03** ***Modeling and Matching Design of a Tension Controller using Pendulum Dancer in Roll-to-roll Systems*** Hyun-Kyoo Kang, Konkuk University, Republic of Korea; Chang-Woo Lee, Konkuk University, Republic of Korea; Kee-Hyun Shin, Konkuk University, Republic of Korea; and Sang-Chul Kim, Kookmin University, Republic of Korea
03:30 PM	**BREAK**	**BREAK**	**BREAK**
04:00 PM	**IAS02p04** ***An IGBT-Based Pulsed Power Supply in the Fabrication of Non-contiguous Nanofibres using Electrospinning*** Rina Baba, and Shesha Jayaram, University of Waterloo, Canada	**IAS03p04** ***Wind Speed and Rotor Position Sensorless Control for Direct-Drive PMG Wind Turbines*** Xiang Gong, Xu Yang, and Wei Qiao, University of Nebraska-Lincoln, United States	**IAS05p04** ***Shape Measurement of Steel Strips Using a Laser-Based Three-Dimensional Reconstruction Technique*** Julio Molleda, Rubén Usamentiaga, Daniel García, Francisco Bulnes, University of Oviedo, Spain; and Laura Ema, ArcelorMittal, Spain
04:30 PM	**IAS02p05** ***Low Level Ionic Current Sensing Micro-tip*** Shahzad Memon, Brunel University, United Kingdom; and Wamadeva Balachandran, Brunel University, United Kingdom	**IAS03p05** ***A Complete Modeling and Simulation of Induction Generator Wind Power Systems*** Yu Zou, University of Akron, United States; Malik Elbuluk, University of Akron, United States; and Yilmaz Sozer, University of Akron, United States	**IAS05p05** ***A Systematic Iron Loss Evaluating Scheme for Electromagnetic Steel Products*** Cheng-Tsung Liu, Li-Yang Liu, National Sun Yat-Sen University, Taiwan; and Sheng-Yang Lin, China Steel Corporation, Taiwan
05:00 PM	**IAS02p06** ***A MEMS Sensor for Gas Detection in High Voltage Oil Filled Equipment*** Krishna Prasad Bhat, State University of New York at Buffalo, United States; Douglas C. Hopkins, State University of New York at Buffalo, United	**IAS03p06** ***A real-time sharing reference voltage for hybrid generation power system*** Damien Paire, Systems and Transport Laboratory, France; Marcelo G. Simões, Colorado School of Mines, Engineering Division, United States; Jérémy Lagorse, Systems and Transport Laboratory, France; and Abdellatif Miraoui, Systems and Transport Laboratory, France	**IAS05p06** ***Performance Improvements in an Arc Welding Power Supply Based on Resonant Inverters*** Alejandro Navarro Crespin, University of Cantabria, Spain; Rosario Casanueva, University of Cantabria, Spain; and Francisco J. Azcondo, University of Cantabria, Spain
05:30 PM		**IAS03p07** ***An Energy Management System for Building Structures Using a Multi-agent Decision-Making Control Methodology*** Peng Zhao, Siddharth Suryanarayanan, and Marcelo Simoes, Colorado School of Mines, United States	**IAS05p07** ***Automated region of interest retrieval of metallographic images for quality scoring estimation*** Petr Kotas, Pavel Praks, Technical University of Ostrava, Czech Republic; Ladislav Valek, ArcelorMittal Ostrava, Czech Republic; and Vesna Zeljkovic, IT College, Saudi Arabia

Room:	Arboretum 1 & 2	Arboretum 3 & 4
Committee:	**Electrostatic Processes**	**Industrial Automation and Control**
	Session 6: Classical and Emerging Electrostatic Processes **Session Chair**: Lucian Dascalescu, University of Poitiers, France **Session Organizer**: Lucian Dascalescu, University of Poitiers, France	**Session 7**: Industrial Automation and Control **Session Chair**: Ahmed Rubaai, Howard University, United States **Session Organizer**: Marcelo G. Simoes, Colorado School of Mines, United States
8:00 AM	**IAS06p01** ***Air-assisted passive ionizer for a charged pipe*** Toshiyuki Sugimoto, Yamagata University, Japan; Asami Kitamura, Yamagata University, Japan; and Yoshio Higashiyama, Yamagata University, Japan	**IAS07p01** ***DC-Link Voltage Large Signal Stabilization and Transient Control Using a Virtual Capacitor*** Pierre Magne, GREEN-ENSEM, France;Babak Nahid-Mobarakeh, GREEN-ENSEM, France; and Serge Pierfederici, GREEN-ENSEM, France
8:30 AM	**IAS06p02** ***Robust Design and Capability Evaluation of a Tribo-aerodynamic Charging Process for Fine Particles*** Lucian Dascalescu, University of Poitiers, France; Mihai Bilici, University of Poitiers, France; Ciprian Dragan, University of Poitiers, France; Adrian Samuila, University of Poitiers, France; Youcef Ramdani, University of Sidi-Bel-Abbes, Algeria; and Amar Tilmatine, University of Sidi-Bel-Abbes, Algeria	**IAS07p02** ***QFT-Based Robust Simmering Control for Domestic Induction Cookers Using an Infrared Sensor*** David Paesa, Universidad de Zaragoza, Spain;Carlos Franco, Universidad de Zaragoza, Spain;Sergio Llorente, BSH Home Appliances Group, Spain;Gonzalo Lopez-Nicolas, Universidad de Zaragoza, Spain; and Carlos Sagues, Universidad de Zaragoza, Spain
9:00 AM	**IAS06p03** ***Application of Genetic Algorithms to the Optimization of a Roll-Type Electrostatic Separation Process*** Omar Dahou, University of Sidi-Bel-Abbes, Algeria; Karim Medles, University of Sidi-Bel-Abbes, Algeria; S Touhami, University of Sidi-Bel-Abbes, Algeria; M.F. Boukhoulda, University of Sidi-Bel-Abbes, Algeria; Amar Tilmatine, University of Sidi-Bel-Abbes, Algeria; and Lucian Dascalescu, University of Poitiers, France	**IAS07p03** ***PSO Tuned Flatness Based Control of a Magnetic Levitation System*** Ejike Anene, Abubakar Tafawa Balewa University, Nigeria; and Ganesh Kumar Venayagamoorthy, Missouri University of Science and Technology, United States
9:30 AM	**IAS06p04** ***A performance study of a multi-level electrode treatment chamber for food processing*** Ayman El-Hag, American University of Sharjah, United Arab Emirates;Shesha Jayaram, University of Waterloo, Canada;Oscar Rodriguez, University of Guelph, Canada; and Mansel Griffiths, University of Guelph, Canada	**IAS07p04** ***A New Method for Estimation and Control of Temperature Profile over a Sheet in Thermoforming Process*** Md. Muminul Islam Chy, McGill University, Canada; and Benoit Boulet, McGill University, Canada
10:00 AM	BREAK	BREAK
10:30 AM	**IAS06p05** ***Numerical Modeling of Triboelectric Charging of Granular Materials in Vibrated Beds*** Jean-Charles Laurentie, University of Poitiers, France; Philippe Traoré, University of Poitiers, France; Ciprian Dragan, University of Poitiers, France; and Lucian Dascalescu, University of Poitiers, France	**IAS07p05** ***PID-State Torque Control in Electromechanical Drive Systems under Stochastic Load*** Constantinos Sourkounis, Ruhr-University Bochum, Germany
11:00 AM	**IAS06p06** ***Triboelectric Charging of Insulators - Evidence for Electrons versus Ions*** Meurig Williams, Xerox, United States	**IAS07p06** ***A Conjugate Gradient Method for the Solution of the Inverse Heating Problem in Thermoforming*** Md. Muminul Islam Chy, McGill University, Canada; and Benoit Boulet, McGill University, Canada
11:30 AM		

Room:	Arboretum 5 - Please note that these sessions run 20 minutes in length
Committee:	**Electrostatic Processes**
	Session 8: Special session : Non-thermal Plasma Processes and Environmental Protection **Session Chair**: Akira Mizuno Toyohashi University of Technology, Japan **Session Organizer**: Masaaki Okubo Osaka Prefecture University, Japan
8:00 AM	**IAS08p01** ***A new mobile IGBT inverter HV test system for ESPs*** Norbert Grass, Ohm University, Germany; Michael Steingraeber, Siemens Inc., Germany; and Roland Metz, Siemens Inc., United States
8:20 AM	**IAS08p02** ***Collection of diesel exhaust particle using gradient force*** Hideaki Hayashi, Toyohashi University of Technology, Japan; and Kazunori Takashima, Toyohashi University of Technology, Japan
8:40 AM	**IAS08p03** ***A Laboratory Analysis of Plasma Based Hybrid Techniques for Treating Engine Exhaust*** Bangalore Rajanikanth, Indian Institute of Science, India; and Amruthur Srinivasan, SJ College of Engineering, India
9:00 AM	**IAS08p04** ***Bench-Scale Test of Toluene Decomposition Using Adsorption and Surface Discharge with Gas Circulation*** Tomoyuki Kuroki, Osaka Prefecture University, Japan; Kiyoyuki Hirai, Osaka Prefecture University, Japan; Shigeru Matsuoka, Shimakawa Seisakusho Co., Ltd., Japan; Jong Youl KIM, Shimakawa Seisakusho Co., Ltd., Japan; and Masaaki Okubo, Osaka Prefecture University, Japan
9:20 AM	***IAS08P05 Dilute Trichloroethylene Decomposition by using High Pressure Non-Thermal Plasma -Humidity Effects-*** Yusuke Nakagawa, The University of Tokyo, Japan; Hidetoshi Fujisawa, The University of Tokyo, Japan; Ryo Ono, The University of Tokyo, Japan; and Tetsuji Oda, The Univeristy of Tokyo, Japan
9:40 AM	**IAS08p06** ***Removal of Indoor Air Contaminant by Atmospheric Microplasma*** Kazuo Shimizu, Shizuoka University, Japan;Marius Blajan, Shizuoka University, Japan; and Tomoya Kuwabara, Shizuoka University, Japan
10:00 AM	BREAK
11:30 AM	**IAS08p07** ***Nobel NOx and VOC Treatment using Concentration and Plasma Decomposition*** Toshiaki Yamamoto, Tokyo City University, Japan; Souma Asada, Tokyo City University, Japan; Tomohiro Iida, Tokyo City University, Japan; and Yoshiyasu Ehara, Tokyo City University, Japan
10:50 AM	**IAS08p08** ***Operation Test of Pilot-Scale Low-Emission Multi-Fuel Boiler with Plasma-Chemical Hybrid NOx Reduction System*** Hidekatsu Fujishima, Osaka Prefecture University, Japan; Yusuke Yoshioka, Osaka Prefecture University, Japan; Tomoyuki Kuroki, Osaka Prefecture University, Japan; Atsushi Tanaka, Takao Iron Works Co., Ltd., Japan; Keiichi Otsuka, Takao Iron Works Co., Ltd., Japan; and Masaaki Okubo, Osaka Prefecture University, Japan
11:10 AM	**IAS08p09** ***Analysis of Significant ParametersAffecting the Shielding Failure of HVDC-TL*** Mohamed Nayel, Assiut University, Egypt; Zhao Jie, CSG, China; and Jinliang He, Tsinghue University, China
11:30 AM	**IAS08p10** ***Investigation of Lightning Rod Shielding Angle*** Mohamed Nayel, Assiut University, Egypt

Room:	Magnolia	Magnolia	Cottonwood
Committee:	**Metals Industry**	**General Applications of Electrical and Electronic Engineering Industry**	**Power System Protection**
	Session 9: Metal Power Systems / Primary Steel **Session Chair**: S. Douglas Cromey Novelis Inc., Canada **Session Organizer**: S. Douglas Cromey Novelis Inc., Canada	General Applications in Industry Committee **Session Chair**: Thomas Nondahl Rockwell Automation, United States **Session Organizer**: Thomas Nondahl Rockwell Automation, United States	**Session 10**: Power System Protection I **Session Chair**: Rasheek Rifaat Jacobs Engineering, Canada **Session Organizer**: Rasheek Rifaat Jacobs Engineering, Canada
8:00 AM	**IAS09p01** ***Design, Implementation and Operationof a New C-type 2nd Harmonic Filterfor Electric Arc and Ladle Furnaces*** Cem Ozgur Gercek, TUBITAK-Uzay Institute, Turkey;Muammer Ermi, Middle East Technical University, Turkey;Arif Ertas, Middle East Technical University, Turkey;Kemal Nadir Kose, TUBITAK-Uzay Institute, Turkey; and Ozgur Unsar, TUBITAK-Uzay Institute, Turkey		**IAS10p01** ***Tripping Characteristics of Residual Current Devices under Non-Sinusoidal Currents*** Ya Ping DU, The Hong Kong Polytechnic University, Hong Kong; Xiang Luo, Shanghai Jiao Tong University, China; Xinghua Wong, The Hong Kong Polytechnic University, Hong Kong; and Mingli Chen, The Hong Kong Polytechnic University, Hong Kong
8:30 AM	**IAS09p02** ***Vacuum Circuit Breaker Transients During Switching of an LMF Transformer*** Thomas Dionise, David Shipp, Visuth Lorch, and Bill MacFarlane, Eaton Corporation, United States		**IAS10p02** ***A Substation Data System Overview*** Geoffrey Garber, MSE Power Systems, Inc., United States; and Mark Scher, MSE Power Systems, Inc., United States
9:00 AM	**IAS09p03** ***Electric Power System Analysis and Design of an Expanding Steel Cogeneration Plant*** Cheng-Ting Hsu, Southern Taiwan University, Taiwan;Chao-Shun Chen, I-Shou University, Taiwan; and Chia-Hung Lin, Kaohsiung University of Applied Sciences, Taiwan		**IAS10P03** ***Transmitting Power System Dynamics in Existing SCADA using Sampling/Interpolation based Data Compression*** Sheng Su, Changsha University of Science & Technology, China
9:30 AM	**IAS09p04** ***Innovative Differential Protection of EAF Electrical Systems Using Low Energy Current Sensors*** Timothy Day, Cooper Power Systems, United States;Ljubomir Kojovic, Cooper Power Systems, United States; and Dharam Sharma, Nucor-Yamato Steel Company, United States		**IAS10p04** ***Fully Utilizing the Intelligent Electronic Device Capability to Reduce Wiring in Industrial Electric Distribution Substations*** Jakov Vico, GE Digital Energy, Canada;Terrence Smith, GE Digital Energy, United States; and Richard Hunt, GE Digital Energy, United States
10:00 AM	BREAK	BREAK	BREAK
10:30 AM		**IAS04p01** ***Compact Fluorescent Lamps and Their Effect on Power Quality and Application Guidelines*** Monte Richard, Carollo Engineers, United States; and Pankaj Sen, Colorado School of Mines, United States	**IAS10p05** ***Different Factors Affecting Short Circuit Behavior of a Wind Power Plant*** Eduard Muljadi, National Renewable Energy Laboratory, United States;Nader Samaan, PNNL, United States;Vahan Gevorgian, National Renewable Energy Laboratory, United States;Jun Li, EnerNex, United States; and Subbaiah Pasupulati, Oak Creek Energy Systems Inc., United States
11:00 AM		**IAS04p02** ***Simple Voltage Modulation Technique for Quasi Six-Phase Series Connected Two-Motor Drive System*** Atif Iqbal, Texas A&M University at Qatar, Qatar;Mohammad Arif Khan, KIET Engineering College, India;SK Moin Ahmed, and Haitham Abu Rub, Texas A&M University at Qatar, Qatar	**IAS10p06** ***Rule Based Fault Tolerant Protection System using IEC 61850 Protocol*** Sheng Su, Changsha University of Science & Technology, China
11:30 AM			**IAS10p07** ***A New Implementation Method of Wavelet Packet Transform Differential Protection for Power Transformers*** S A Saleh, Memorial University of Newfoundland, Canada;B Scaplen, Memorial University of Newfoundland, Canada; and M A Rahman, Memorial University of Newfoundland, Canada

Room:	Arboretum 1 & 2	Arboretum 3 & 4
Committee	**Electrostatic Processes Committee**	**Industrial Automation and Control Committee**
	Session 11: Electro-hydro-dynamic Processes **Session Chair**: Kaz Adamiak, University of Western Ontario, Canada **Session Organizer**: Jamal Yagoobi, Illinois Institute of Technology, United States	**Session 12**: Advanced Drives and Converters **Session Chair**: M. David Kankam, NASA, John Glenn Research Center, United States **Session Organizer**: Marcelo G. Simoes, Colorado School of Mines, United States
02:00 PM	**IAS11p01** ***Dynamics of Water Droplet Distortion and Break-up in a Uniform Electric Field*** Kazimierz Adamiak, University of Western Ontario, Canada; and Jerzy M. Floryan, University of Western Ontario, Canada	**IAS12p01** ***Simple Dynamic Overmodulation Strategy for Fast Torque Control in DTC of Induction Machines with Constant Switching Frequency Controller*** Auzani Jidin, UTeM, Malaysia;Nik Rumzi Nik Idris, UTM, Malaysia;Abd-Alhalim Yatim, UTM, Malaysia;T. Sutikno, UTM, Malaysia; and Malik Elbuluk, University of Akron, United States
02:30 PM	**IAS11p02** ***The Effect of Charge Injection on EHD Conduction Pumping*** Miad Yazdani, United Technologies Research Center, United States; and Jamal Seyed-Yagoobi, Illinois Institute of Technology, United States	**IAS12p02** ***Independent Position Controls of Two Permanent Magnet Synchronous Motors Fed by a Five-Leg Inverter*** Hiroyuki Enokijima, Meiji University, Japan
03:00 PM	**IAS11p03** ***Oscillatory dielectric liquid flow generated by EHD micropump*** Ichiro Kano, Yamagata University, Japan	**IAS12p03** ***Universal Control Strategy for Three Different Multilevel Inverters*** Ignace Rasoanarivo, GREEN-ENSEM, France;Babak Nahid-Mobarakeh, GREEN-ENSEM, France; and Serge Pierfederici, GREEN-ENSEM, France
03:30 PM	**BREAK**	**BREAK**
04:00 PM	**IAS11p04** ***Study of Electrohydrodynamic Micropumping Through Conduction Phenomenon*** Seyed Reza Mahmoudi, University of Western Ontario, Canada; G.S.P. Castle, University of Western Ontario, Canada;Kazimierz Adamiak, University of Western Ontario, Canada; and M. Ashjaee, University of Teheran, Islamic Republic of Iran	**IAS12p04** ***ISO Efficiency Curves Of A -Two-Phase Hybrid Stepping Motor*** Stijn Derammelaere, Bram Vervisch, Johannes Cottyn, Bart Vanwalleghem, Kurt Stockman, Technical University College of West-Flanders, Belgium;Frederik De Belie, Ghent University, Belgium;Lieven Vandevelde, Ghent University, Belgium;Peter Cox, ON Semiconductor, Belgium; and Griet Van den Abeele, PsiControl Mechatronics, Belgium
04:30 PM	**IAS11P05** ***Numerical Simulation of the Electrical Double Layer Development at the Solid and Dielectric Liquid Interface for Flow Electrification Phenomenon*** Mohamed EL-ADAWY, Université de Poitiers, France; Thierry Paillat, Université de Poitiers, France; Juan Martin Cabaleiro, Universidad de Buenos Aires, Argentina; and Gérard Touchard, Université de Poitiers, France	**IAS12p05** ***Fault Detection in a Current Controlled PM Drive Using Back-EMF Estimation and Residual Analysis*** Nicolas Leboeuf, GREEN-ENSEM, France;Thierry Boileau, GREEN-ENSEM, France;Babak Nahid-Mobarakeh, GREEN-ENSEM, France; and Farid Meibody-Tabar, GREEN-ENSEM, France
05:00 PM	**IAS11p06** ***Generation of Water Droplet in Fluorocarbon using Electrostatic Atomization*** Hironori Aoki, Toyohashi University of Technology, Japan;Hirofumi Kurita, Toyohashi University of Technology, Japan;Thierry Paillat, University of Poitiers, France;Kazunori Takashima, Toyohashi University of Technology, Japan; and Akira Mizuno, Toyohashi University of Technology, Japan	**IAS12p06** ***A Voltage Controlled PFC Cuk Converter Based PMBLDCM Drive for Air-Conditioners*** Sanjeev Singh, Indian Institute of Technology, India; and Bhim Singh, Indian Institute of Technology, India
05:30 PM		**IAS12p07** ***Application of Transfer Switch in Mining Converters*** Joy Mazumdar, Siemens Industry, Inc., United States

Room:	Arboretum 5	Magnolia	Cottonwood
Committee	**Power System Engineering**	**Mining**	**Energy Systems**
	Session 13: Power System Engineering I **Session Chair**: Massimo Mitolo Chu and Gassman, United States **Session Organizer**: Massimo Mitolo Chu and Gassman, United States	**Session 14**: Mining Safety, Instrumentation and Efficiency **Session Chair**: Nathan Wright ASARCO, United States **Session Organizer**: Jorge Pontt Technical University Federico Santa Maria, Chile	**Session 15:** Energy System I **Session Chair**: Wei-Jen Lee University of Texas at Arlington, United States **Session Organizer**: Joe Weber Emerson, United States
2:00 PM	**IAS13p01** ***A Novel System-Centric Intelligent Adaptive Control Architecture for damping Inter-area mode oscillations in Power System*** Sukumar Kamalasadan, University of West Florida, United States; and Gerald Swann, University of West Florida, United States	**IAS14p01** ***Analysis of a Stator Earth Fault Protection System of a Medium Voltage Converter-fed Synchronous Motor*** Jorge Pontt, Technical University Federico Santa Maria, Chile; and Raul Vargas, D.Electronics, Chile	**IAS15p01** ***Modeling and Simulation of PEM Fuel Cell Generator as a Micro Grid*** Sukumar Kamalasadan, University of West Florida, United States; and Chad Tanton, University of West Florida, United States
2:30 PM	**IAS13p02** ***Corrosive Sulfur in Transformer Oil*** Jill Smith, United States Bureau of Reclamation, United States; and Pankaj Sen, Colorado School of Mines, United States	**IAS14p02** ***Impact of Process and Energy Efficiency in Mineral Processing on Abatement of Carbon Emissions*** Jorge Pontt, Technical University Federico Santa Maria, Chile; Juan Yianatos, Waldo Valderrama, Luis Bergh, Fernando Rojas, Ulises Ramos, Francisco Albayay, and Manuel Olivares, UTFSM, Chile	**IAS15P02** ***Detection and Severity Classification of Rotor Imbalance Faults in Induction Machines*** Himanshu Jain, Suratsavadee Korkua, University of Texas at Arlington, United States; Wei-Jen Lee, Energy Systems Research Center, University of Texas at Arlington, United States; and Chiman Kwan, Signal Processing, Inc, United States
3:00 PM	**IAS13p03** ***A Novel Electronic Controller Implementation for Voltage Regulation of Single Phase Self-Excited Induction Generator*** Ujjwal Kalla, S. S. Murthy, Indian Institute of Technology, India; and G. Bhuvaneswari, Indian Institute of Technology, India	**IAS14p03** ***Simulation of a Medium Frequency Mesh Network for Communications in Underground Mines*** Michael Souryal, NIST, United States;Fabien Valoit, NIST, United States;Hui Guo, NIST, United States;Nader Moayeri, NIST, United States;Nicholas Damiano, NIOSH, United States; and David Snyder, NIOSH, United States	**IAS15p03** ***Financial Analysis of A Large Scale Photovoltaic System and Its Impact on Distribution Feeders*** Chia-Hung Lin, Wei-Lin Hsieh, National Kaohsiung University of Applied Sciences, Taiwan;Chao-Shun Chen, I-Shou University, Taiwan;Te-Tien Ku, National Sun Yat-Sen University, Taiwan; and Cheng-Ta Tsai, National Kaohsiung University of Applied Sciences, Taiwan
3:30 PM	**BREAK**	**BREAK**	**BREAK**
4:00 PM	**IAS13p04** ***Transient Analysis of Grounding Systems under Lightning Strikes Considering Soil Ionization*** L. A. Salgado, J. L. Guardado, J. Torres, Instituto Tecnológico de Morelia, Mexico; and E. O. Hernández, Instituto de Investigaciones Eléctricas, Mexico	**IAS14p04** ***Reducing Specific Energy to Shrink the Carbon Footprint in a Copper Electrowinning Facility*** Eduardo Wiechmann, University of Concepcion, Chile;Anibal Morales, University of Concepcion, Chile;Pablo Aqueveque, University of Concepcion, Chile; and Robert Mayne-Nicholls, Barrick, Chile	**IAS15p04** ***Energy Yield and Power Fluctuation of Different Control Methods for Wind Energy Converters*** Bingchang Ni, Ruhr-University Bochum, Germany; and Constantinos Sourkounis, Ruhr-University Bochum, Germany
4:30 PM	**IAS13p05** ***Reduction of Neutral Current in Airport Lighting System*** G Bhuvaneswari, IIT Delhi, India; and G Somasundaram, IIT Delhi, India	***IAS14p05 Optimizing Safety and Efficiency in the Mining Industry*** Jody C. Warren P.E., Shah Shahroozi, P.E., Fluor Corporation, United States	**IAS15p05** ***Impedance Control of Thyristor Controlled Series Capacitor to Improve the Transfer Capability of Remote Wind Farms*** Kejun Li, Shandong University, China;Wei-Jen Lee, University of Texas at Arlington, United States; and Ying Sun, Shandong University, China
5:00 PM	**IAS13p06** ***Reliability of Example Mechanical Systems for Data Center Cooling Selected by Tier Classification*** Robert Arno, Gardson Githu, Peter Gross, Robert Schuerger, HP and Scott Wilson, HP Critical Facilities Services, United States		**IAS15p06** ***Development and Field Test of Movable Conduction-Cooled High Temperature SMES*** Jiakun Fang, Haishun Sun, Li Ren, China;Jinyu Wen, Huazhong University of ScienceTechnology, China;Wei-Jen Lee, University of Texas at Arlington, United States;Youping Xu, Central China Grid Company Ltd, China; and Xiaotao Peng, Wuhan University, China
5:30 PM			**IAS15p07** ***Taiwan first large-scale offshore wind farm connection–a real project case study*** Yuan-Kang Wu, National Penghu University, Taiwan;Ching-Yin Lee, Tungnan University, Taiwan; and Ging-He Shu, National Taipei University of Technology, Taiwan

Room	Arboretum 1 & 2	Arboretum 3 & 4
Comittee:	**Electrostatic Processes**	**Industrial Automation and Control**
	Session 16: Electrostatic Measurements **Session Chair**: William D. Greason, University of Western Ontario, Canada **Session Organizer**: William D. Greason, University of Western Ontario, Canada	**Session 17**: Intelligent Control Based Power Electronics Session Chair: Donald S. Zinger Northern Illinois University, United States Session Organizer: Marcelo G. Simoes Colorado School of Mines, United States
8:00 AM	**IAS16p01** ***Measurement Methodologies for Analysis of Electrostatic Discharge (ESD) Events in Multi-Body Problems*** William Greason, University of Western Ontario, Canada	**IAS17p01** ***dSPACE DSP-based Real-Time Implementation of Fuzzy Switching Bang-Bang Controller for Automation and Appliance Industry*** Ahmed Rubaai, Howard University, United States; and Jan Jerry, Howard University, United States
8:30 AM	**IAS16p02** ***Surface Potential vs. Electric Field Measurements as Means to Characterize the Charging State of Non-Woven Fabrics*** Angela Antoniu, University of Poitiers, France;Lucian Dascalescu, University of Poitiers, France;Ionut-Vasile Vacar, University of Poitiers, France;Marius-Cristian Plopeanu, Politehnica University, Bucharest, Romania;Belaid Tabti, A. Mira University, Bejaia, Algeria; and Horia-Nicolai Teodorescu, G. Asachi University, Romania	**IAS17p02** ***DSP-Based Fuzzy Neural Network PI/PD-Like Fuzzy Controller for Motion Controls and Drives*** Ahmed Rubaai, Howard University, United States; and Paul Young, Howard University, United States
9:00 AM	**IAS16p03** ***Tribocharging of Mixed Granular Plastics in a Fluidized-Bed Device*** Ciprian Dragan, University of Poitiers, France;Ovidiu Fati, University of Poitiers, France;Mirela Radu, University of Poitiers, France;Laur Calin, University of Poitiers, France;Adrian Samuila, University of Poitiers, France; and Lucian Dascalescu, University of Poitiers, France	**IAS17p03** ***FLC Based DTC Scheme to Improve the Dynamic Performance of an IM Drive*** Mohammad Uddin, Lakehead University, Canada; and Muhammad Hafeez, Lakehead University, Canada
9:30 AM	**IAS16p04** ***Measurement of Charge Evolution in Oxides of dc Stressed MOS Structures*** Ludovic Boyer, Université Montpellier 2, France; Petru Notingher, Université Montpellier 2, France; Serge Agnel, Université Montpellier 2, France; Bernard Rousset, LAAS-CNRS, France; and Jean-Louis Sanchez, LAAS-CNRS, France	**IAS17p04** ***Performance Analysis of an FLC Based Online Adaptation of Both Hysteresis and PI Controllers for IPMSM Drive*** Mohammad Uddin, Lakehead University, Canada; and Ronald Rebeiro, Lakehead University, Canada
10:00 AM	BREAK	BREAK
10:30 AM	**IAS16p05** ***Electric Field Sensor Based On A Varactor Diode/MIS/MOS Structure*** Maciej Noras, University of North Carolina at Charlotte, United States	**IAS17p05** ***Intelligent Monitoring and Control of Microgrid*** Darshit Shah, Missouri University of ScienceTechnology, United States;Ganesh Kumar Venayagamoorthy, Missouri University of ScienceTechnology, United States; and Keith Corzine, Missouri University of Science and Technology, United States
11:00 AM	**IAS16p06** ***Emission spectroscopy of pulsed powered micro-plasma for surface treatment of PEN film*** Marius Blajan, Shizuoka University, Japan;Akira Umeda, Shizuoka University, Japan;Shuichi Muramatsu, Shizuoka University, Japan; and Kazuo Shimizu, Shizuoka University, Japan	**IAS17p06** ***Control of High-Speed Sensorless PM Brushless DC Motors*** K. Wang, Memorial University of Newfoundland, Canada;M A Rahman, Memorial University of Newfoundland, Canada; and J. X. Shen, Zhejiang University, China

Room	Arboretum 5	Magnolia	Window Box
Comittee:	**Power System Engineering**	**Mining**	**Energy Systems**
	Session 18 Power System Engineering II **Session Chair**: Peter Sutherland, GE, United States **Session Organizer**: Massimo Mitolo Chu and Gassman, United States	**Session 19** Mining Machines, Drives and Processes **Session Chair**: Eduardo Wiechmann University of Concepcion, Chile **Session Organizer**: Galina Mirzaeva University of Newcastle, Australia	**Session 20** Energy System II **Session Chair**: Wei-Jen Lee University of Texas at Arlington, United States **Session Organizer**: Joe Weber Emerson, United States
8:00 AM	**IAS18p01** ***A Novel MATLAB Graphical User Interface Based Methodology for Analysis, Design and Capacitor Estimation of Self Excited Induction Generators*** S. S. Murthy, Indian Institute of Technology, India; G. Bhuvaneswari, Indian Institute of Technology, India; Rajesh Kr. Ahuja, Indian Institute of Technology, India; and Sarsing Gao, Indian Institute of Technology, India	**IAS19p01** ***Sliding Window Trend Analysis: A Method for Short and Open Circuit Detection in Copper Electrorefining*** Eduardo Wiechmann, University of Concepcion, Chile;Anibal Morales, University of Concepcion, Chile;Pablo Aqueveque, University of Concepcion, Chile; and Esteban Pino, University of Concepcion, Chile	**IAS20p01** ***Isolated Asynchronous Generator in Wind Generation Feeding Dynamic Loads*** Shailendra Sharma, Indian Institute of Technology, India; and Bhim Singh, Indian Institute of Technology, India
8:30 AM	**IAS18p02** ***Three-Level 24-Pulse STATCOM with Pulse Width Control at Fundamental Frequency Switching*** Kadagala Venkata Srinivas, Indian Institute of Technology, India; and Bhim Singh, Indian Institute of Technology, India	**IAS19p02** ***Frequency analysis of experimental waveforms for DC motors in digging applications*** Galina Mirzaeva, University of Newcastle, Australia;James Welsh, University of Newcastle, Australia;Terrence Summers, University of Newcastle, Australia; and Robert Betz, University of Newcastle, Australia	**IAS20p02** ***Single-Stage Power-Factor-Correction Circuit with Flyback Converter to Drive LEDs for Lighting Applications*** Ying-Chun Chuang, Kun Shan University, Taiwan; Yu-Lung Ke, National Penghu University, Taiwan; Hung-Shiang Chuang, Kao Yuan University, Taiwan; and Chia-Chieh Hu, Kun Shan University, Taiwan
9:00 AM	**IAS18p03** ***Designing Harmonic Filters for an Aluminum Smelting Plant*** Babak Badrzadeh, Vestas Technology R&D, Denmark;Kenneth Smith, Mott MacDonald, United Kingdom; and Roddy Wilson, Mott MacDonald, United Kingdom	**IAS19p03** ***Active Compensation of Sub and Interharmonics in Cycloconverter-Fed Grinding Mill Drives*** Pablo Aravena, Universidad de Concepcion, Chile;Luis Moran, Universidad de Concepcion, Chile;Juan Dixon, Universidad Catolica, Chile; and Geza Joos, McGill University, Canada	**IAS20p03** ***Implementation of a Solar Power Battery Energy Storage System with Maximum Power Point Tracking*** Yu-Lung Ke, National Penghu University, Taiwan;Ying-Chun Chuang, Kun Shan University, Taiwan;Yuan-Kang Wu, National Penghu University, Taiwan; and Bo-Tsung Jou, Kun Shan University, Taiwan
9:30 AM	**IAS18p04** ***Conjugate Thermal Analysis of a High-Power and High-Frequency Transformer*** Ping-Huey Tang, Far East University, Taiwan;Chang-Chou Hwang, Feng Chia University, Taiwan; and Cheng-Tsung Liu, National Sun Yat-sen University, Taiwan	**IAS19p04** ***A Dynamic Dynamometer for Testing of Mining DC Motors*** Robert Betz, University of Newcastle, Australia; Galina Mirzaeva, University of Newcastle, Australia; and Terry Summers, University of Newcastle, Australia	**IAS20p04** ***Quantitative Analysis and Rating Considerations of a Doubly Fed Induction Generator for Wind Energy Conversion Systems*** Vijay Chand Ganti, Indian Institute of Technology, India; and Bhim Singh, Indian Institute of Technology, India
10:00 AM	BREAK	BREAK	BREAK
10:30 AM	**IAS18p05** ***Analysis of Electromechanical Interactions in a Flywheel System with a Doubly Fed Induction Machine*** Li Ran, Durham University, United Kingdom; Dawei Xiang, Durham University, United Kingdom; and James Kirtley, Jr., MIT, United States	**IAS19p05** ***Fast Discharge Mechanism for Ring Motors in Gearless Draglines*** Joy Mazumdar, Siemens Industry, Inc., United States	**IAS20p05** ***Performance of Wind Energy Conversion System using a Doubly Fed Induction Generator for Maximum Power Point Tracking*** Shiv Kumar Aggarwal, Indian Institute of Technology, India;Bhim Singh, Indian Institute of Technology, India; and Tara Chandra Kandpal, Indian Institute of Technology, India

Room	Arboretum 1 & 2	Arboretum 3 & 4
Committee	**Electrostatic Processes**	**Power System Engineering**
	Session 21: **Electric Discharges** **Session Chair**: Norbert Grass, Ohm University, Germany **Session Organizer**: Akira Mizuno, Toyohashi University of Technology, Japan	**Session 22**: **Power System Engineering III** **Session Chair**: Andy Hernandez, Delphi, United States **Session Organizer**: Massimo Mitolo, Chu and Gassman, United States
02:00 PM	**IAS21p01** ***Low Voltage Contact Electrostatic Discharge Phenomena*** Tetsuji Oda, University of Tokyo, Japan;Keisuke Hanawa, University ofTokyo, Japan;Yoshiyuki Teramoto, University of Tokyo, Japan; and Ryo Ono, University of Tokyo, Japan	**IAS22p01** ***Parallel Operation of Permanent Magnet Generators in Autonomous Wind Energy Conversion System*** PUNEET GOEL, Government of India, India; Bhim Singh, IIT Delhi, India; Sreenival Murthy, IIT Delhi, India; and Shailendra Tiwari, NTPC Ltd., India
02:30 PM	**IAS21p02** ***Effect of the Electric Discharge Confinement on the Perforation Density of Porous Materials*** Joan J Garcia-Garcia, Universitat Autònoma de Barcelona, Spain; Carolina Garzon, Universitat Autònoma de Barcelona, Colombia; Enrique Miranda, Universitat Autònoma de Barcelona, Spain; Cynthia S Martinez-Cisneros, Universitat Autònoma de Barcelona, Spain; and Julian Alonso, Universitat Autònoma de Barcelona, Spain	**IAS22p02** ***A Series Voltage Regulator based on Quasi-Sinusoidal Waveform to Achieve Smart-Grid Requirements*** Igor Pires, Universidade Federal de Minas Gerais, Brazil; Braz Cardoso Filho, Universidade Federal de Minas Gerais, Brazil; and José Carlos Oliveira, Universidade Federal de Uberlândia, Brazil
03:00 PM	**IAS21p03** ***Investigations on the Corona performance of a Ceramic disc Insulators integrated with Field Reduction Electrode*** Subba Reddy, Indian Institute of Science, India; and Udaya Kumar, Indian Institute of Science, India	**IAS22p03** ***Thermal Analysis of Cables in Ducts Using SUPG Finite Element Method*** Yongchun Liang, Hebei University of Science & Technology, China; and Xiaoyun Sun, Hebei University of Science and Technology, China
03:30 PM	BREAK	BREAK
04:00 PM	**IAS21p04** ***Studies on Compact Discharge Plasma Source for NOX Treatment in Engine Exhaust*** Bangalore Rajanikanth, Indian Institute of Science, India; and Sankarsan Mohapatro, Indian Institute of Science, India	**IAS22p04** ***Identifying Issues That Adversely Affect Data Center Reliability Through Electrical System Audits*** Carolyn Cooper, Eaton Corporation, United States; and Thomas Dionise, Eaton Corporation, United States
04:30 PM	**IAS21p05** ***FEM-FCT Based 2D Simulation of Trichel Pulses in Air*** Paria Sattari, University of Western Ontario, Canada; G.S.P. Castle, University of Western Ontario, Canada; and Kazimierz Adamiak, University of Western Ontario, Canada	
05:00 PM	**IAS21p06** ***Effect of relative humidity on the collection efficiency of a wire-to-plane electrostatic precipitator*** H Nouri, University of Bejaia, Algeria;Youcef Zebboudj, University of Bejaia, Algeria;Noureddine Zouzou, University of Poitiers, France;Eric Moreau, University of Poitiers, France; and Lucian Dascalescu, University of Poitiers, France	
05:30 PM	**IAS21p07** ***Improvement of NOx Reduction Efficiency in Diesel Emission Using Nonthermal Plasma - Exhaust Gas Recirculation Combined Aftertreatment*** Masaaki Okubo, Osaka Prefecture University, Japan; Keiichiro Yoshida, Osaka Institute of Technology, Japan; Takuya Kuwahara, Osaka Prefecture University, Japan; Yohei Kannaka, Osaka Prefecture University, Japan; and Tomoyuki Kuroki, Osaka Prefecture University, Japan	