Welcome to the
50th IEEE Industry Applications Society
Annual Meeting

Over the last 50 years, IAS Annual Meeting has established a long tradition of providing an international forum for practicing engineers, researchers and technical experts to present and discuss the latest developments in the application of electrical technology covering fields such as automation, control, electrostatics, mining, metals, and standards for electrical installations. The conference emphasizes professional development, learning, sharing of experiences, and networking with peers. This year’s conference promises to be very rewarding with a full complement of tutorials, as well as more than 220 technical paper presentations and a poster session from student award winners. Please join us for the Welcome Breakfast on Monday morning when we will share some important announcements and include an update on ways you can maximize your valuable time at the conference this week. As IAS is becoming 50 years young this year, let us utilize this opportunity to celebrate the occasion at this year’s Annual Meeting.

For the first time, the IAS Annual Meeting will be utilizing a mobile conference application in addition to our traditional printed media. The app will offer you conference information at your fingertips, the ability to download papers, and the opportunity to interact with your peers via social media.

This year, we also have workshops focusing on Technical paper writing, Award nomination preparation, and Fellow nomination preparation.

Be sure to check the schedule carefully to ensure that you don’t miss a technical learning opportunity or favorite event. Beyond the technical sessions and tutorials, some of the traditional activities during this week’s conference include our Sunday Chapters & Membership Department Workshop and a technical tour on Tuesday, this year featuring a visit to Oncor’s Microgrid facility in Dallas. On Sunday evening, we will be holding a session to guide first time attendees with an overview of our Society and the week’s conference events, followed by an opening Reception coupled with our traditional student poster session. The technical program begins on Monday with five new tutorials scheduled throughout the week. Monday also includes the Myron Zucker Student luncheon where you will have the opportunity to meet many of the students attending the conference. Finally, be sure to join us on Wednesday evening at the President’s banquet where you can share a final evening with the group while we celebrate and recognize the recipients of this year’s IAS awards. As with every Annual Meeting, the IAS Executive Board and IAS Council will also meet on Wednesday and Thursday to conduct the administrative business of the Society.

The organizing committee of the 50th IAS Annual Meeting has worked hard to put this conference together and hope your stay is both pleasant and productive. Again, welcome to beautiful Dallas, Texas!

Tomy Sebastian
General Chair
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All conference events will be held at the InterContinental Dallas:
15201 Dallas Parkway
Addison, TX 75001
Phone: 972-386-6000

INTERNET ACCESS
As an IAS conference attendee, you receive complimentary high-speed internet access in your guest room. Registered hotel guests should connect to the “InterContinental Dallas Guest Rooms” wireless network and after opening your web browser, enter your last name and room number when prompted for the complimentary basic wi-fi. If you choose the option to upgrade your internet service, you will be responsible for the additional charge. Instructions will also be provided upon check-in. As part of the IAS Annual Meeting, you will not be charged for the basic internet service in your guest room.

Internet access is complimentary in the meeting space as well. Please choose the “InterContinental Dallas Meetings” network and enter the password: IAS2015

REGISTRATION INFORMATION
Registration will be located in the Crystal Ballroom Foyer, located on the Ballroom level of the hotel and will be open the following hours:
- Sunday ..................... 1:00 PM – 7:00 PM
- Monday .................... 6:30 AM – 7:00 PM
- Tuesday  ...................... 7:00 AM – 6:00 PM
- Wednesday .................. 7:00 AM – 6:00 PM
- Thursday .................... 7:30 AM – 12:00 PM

BADGES
Badges should be worn at all official functions of the meeting. If you forget or lose your badge, you may obtain a second badge at Registration.

POSTERS
Student poster displays will be presented during the Welcome Reception which will be hosted in Garden Court I & II on Sunday evening from 6:30 PM – 9:30 PM. The posters will then be available for viewing starting Monday morning in the Crystal Ballroom Foyer until Wednesday afternoon.

SESSION CHAIRS & PRESENTING AUTHORS
The Authors Breakfast on Monday morning will be in Garden Court I & II from 7:00 AM – 8:00 AM, immediately before the Welcome Breakfast. The Author Breakfasts on Tuesday and Wednesday will also be held from 7:00 AM – 8:00 AM in Garden Court I & II. There will be a final Author breakfast on Thursday morning in the Colonnade room (ballroom level) from 7:00 AM – 8:00 AM. These breakfasts are open only to the session chairs and authors who will be presenting that day, to provide authors the opportunity to meet their session moderator and peers.

CONFERENCE RECORD
The Conference Record for the 2015 IAS Annual Meeting has been made available in the form of a flash drive. To access the content of the Conference Record, plug the flash drive into a USB port on your computer, and then use the file management application in your computer to open the file named “Introduction.html” (in your browser). From that index pages, there are hyperlinks to all other pages, including indices that list the technical papers scheduled for presentation at the Annual Meeting by title and authors’ family name. Clicking on the title of a paper in the indices will open the actual manuscript file.

RESTAURANT RESERVATIONS & COMPLIMENTARY EVENING TRANSPORTATION
The hotel is providing IAS attendees with complimentary transportation to nearby shopping and restaurants, within a 3-mile radius of the hotel. For full information about local shopping and restaurants, please visit the hotel’s Concierge Desk in the main lobby. The Concierge Desk can assist with all Addison restaurant reservations, provide recommendations, and arrange your complimentary transportation during the times listed below:
- Monday, October 19th .......... 6:00 PM – 10:00 PM (based upon availability)
- Tuesday, October 20th ........ 6:00 PM – 10:00 PM (based upon availability)

COMPANION’S ROOM
The Companion’s Room is located in the Spectrum room (Ballroom Level), and is open only to guests of conference attendees. It will be available from 8:00 AM – 5:00 PM Monday through Wednesday.
Sponsor

The IAS Annual Meeting sincerely thanks the following sponsor for their support:

EATON

Powering Business Worldwide

Special Events

SUNDAY, OCTOBER 18th
CMD Chapter’s Workshop
(by invitation only)
8:00 AM – 5:00 PM
CRYSTAL BALLROOM IV (Ballroom Level)

Guide to the IAS Annual Meeting for First-Time Attendees
5:30 PM – 6:30 PM
CRYSTAL BALLROOM I (Ballroom Level)

Welcome Reception & Student Poster Session
6:30 PM – 9:30 PM
GARDEN COURT I & II (First Floor)

MONDAY, OCTOBER 19th
Welcome Breakfast
7:30 AM – 8:15 AM
GARDEN COURT I & II (First Floor)

Plenary Session: Developing an Electric Sail to Propel a Spacecraft to the Edge of our Galaxy in 10 Years
8:15 AM – 8:50 AM
GARDEN COURT I & II (First Floor)

Myron Zucker Student Luncheon – open to all students
12:30 PM – 2:00 PM
GARDEN COURT I & II (First Floor)

TUESDAY, OCTOBER 20th
Tour of Oncor Electric Delivery Microgrid
*Separate Fee (pre-registration required)
8:45 AM – 12:15 PM
OFF-SITE

WEDNESDAY, OCTOBER 21st
IAS Executive Board Meeting
8:00 AM – 5:00 PM
WATERFORD (Ballroom Level)

Council Meeting/Workshop Luncheon
12:00 PM – 1:30 PM
GARDEN COURT I & II (First Floor)

President’s Reception
(by invitation only)
5:30 PM – 6:45 PM
GARDEN COURT I & II (First Floor)

IEEE IAS Awards & President’s Banquet
7:00 PM – 9:30 PM
JUNIOR BALLROOM (3rd Level)

THURSDAY, OCTOBER 22nd
IAS Executive Board Meeting
8:00 AM – 12:00 PM
WATERFORD (Ballroom Level)
## Schedule at a Glance
### SUNDAY, OCTOBER 18th

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*Technical Standards Coordinating Committee
*PSP Generator Grounding Working Group Meeting
*TBCC First Principles (Base Book)
TBCC Reliability Working Group
TBCC Protection & Coordination WG
TBCC MOS Working Group
TBCC Power Systems Analysis WB

*Guide to the IAS Annual Meeting
## Schedule at a Glance

**MONDAY, OCTOBER 19th**

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### Registration

- Authors Breakfast
- Welcome Breakfast
- Plenary

### TECHNICAL SESSIONS

- **TECHNICAL SESSION #1** MSDAD/IACC-1 Power Converter Control
- **TECHNICAL SESSION #2** MSDAD/ILDC/Displays
- **TECHNICAL SESSION #3** MSDAD/EPC-1 Electrohydrodynamics
- **TECHNICAL SESSION #4** Student Sessions
- **TECHNICAL SESSION #5** Zucker Student Presentations
- **TECHNICAL SESSION #6** Electric Machines
- **TECHNICAL SESSION #7** MSDAD/IACC-2
- **TECHNICAL SESSION #8** MSDAD/ILDC-2 LED & OLED Drivers
- **TECHNICAL SESSION #9** MSDAD/EPC-2
- **TECHNICAL SESSION #10** Student Sessions
- **TECHNICAL SESSION #11** Student Session
- **TECHNICAL SESSION #12** MSDAD/IACC-8

### Meetings

- Myron Zucker Student Luncheon
- PSE Program Planning Subcommittee Meeting
- PSE Reliability
- PSE Power Systems Analysis
- PSE Emerg & Standby
- PSE Safety Operations
- PSE Power Systems Design
- PSE Grounding
- PSE Power Quality Subcomm
- PSE Forensics Working Group
- PSE Main Committee Meeting
- Technical Standards Coordinating Comm Mtg. Part 1
- PSP Communications Working Group #2
- TBCC 1st Principles WB Part II
- TBCC Grounding Working Group
- TBCC Power Systems Design Working Group
- I&CPS Meetings Comm. Mtg.
- IACC Committee Meeting

### Other Events

- CMD Dinner
- IACC Committee Meeting
- ILDC Committee Meeting

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**HEATWAVE**

**MONDAY, OCTOBER 19th**

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## Schedule at a Glance
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## Schedule at a Glance

**TUESDAY, OCTOBER 20th**

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<th>Crystal Foyer 1-8</th>
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### Schedule at a Glance

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**WEDNESDAY, OCTOBER 21st**

- **Registration**
  - **Author's Breakfast**
  - **Workshop**
    - Topic 1. IEEE Fellow Nomination (Tom Nondahl)
    - Topic 2. Technical Paper Writing (Louie Powell)
    - Topic 3. IEEE Awards Nomination (Kaushik Rajashekara)
  - **Technical Session #30** MSDAD/IACC-5
  - **Technical Session #31** MSDAD/EPC-5
  - **Technical Session #35** MSDAD/IACC-6
  - **Technical Session #36** MSDAD/EPC

- **Board/Council Luncheon**
- **Tutorial**
  - High Power Si & SiC Module Technology and Application Considerations
    - Presented by John Donlon
  - **Technical Session #35** MSDAD/IACC-6
  - **Technical Session #36** MSDAD/EPC

- **President's Banquet**

**Schedule at a Glance**
# Schedule at a Glance

**WEDNESDAY, OCTOBER 21st**

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<td>TECHNICAL SESSION #37 I&amp;CPS-PSEC-4</td>
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<td>TECHNICAL SESSION #38 PI/Metals</td>
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<td>TECHNICAL SESSION #39 I&amp;CPS/ES-4</td>
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**Board Meeting**

**President’s Reception**

**President’s Banquet**
<table>
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<tr>
<th>Crystal Foyer 1-8</th>
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**THURSDAY, OCTOBER 22nd**

**SCHEDULE AT A GLANCE**

**Board & Authors Breakfast**

**Registration**

**TECHNICAL SESSION #40**

**MSDAD/IACC**

**Tutorial: Line-Ground and Unsymmetrical Fault Currents: Consecrations, Calculations and Symmetrical Components Method**

**Presented by Rasheek Rifaat**

**Tutorial: Electrical Safety Management**

**Presented by H. Landis (Lanny) Floyd**

**Part 1: Introduction and Objectives**

**Part 2: Planning and Implementation**

**Board Meeting**
Workshop
WEDNESDAY, OCTOBER 21
8:00 AM – 12:00 PM

1. IEEE Fellow Nomination (Tom Nondahl)
   This presentation will provide suggestions for preparing a nomination for IEEE Fellow and describe how nominations are evaluated.

2. Technical Paper Writing (Louie Powell)
   This presentation will cover the opportunities for writing and presenting technical papers in IAS. It will also include practical suggestions for organizing papers as well as addressing some of the most common problems encountered by authors.

3. IEEE Awards Nomination (Kaushik Rajashekara)
   This presentation will give an idea about nominating the eligible members for various IEEE awards and some suggestions that could be considered while preparing the nomination materials.
## Committee Meetings

<table>
<thead>
<tr>
<th>Department/Committee</th>
<th>Start Time</th>
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<tbody>
<tr>
<td><strong>SATURDAY, OCTOBER 17, 2015</strong></td>
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<td>CMD Department Meeting</td>
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<td><strong>SUNDAY, OCTOBER 18, 2015</strong></td>
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<td>CMD Workshop</td>
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<td>Technical Standards Coord Main Meeting</td>
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<td>PSP Communications WG I</td>
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<td>TBCC First Principles</td>
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<td>PSE Safety, Operations Subcommittee</td>
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There is an interest in examining the Heliopause region (edge of Solar System) and beyond by the scientific Heliophysics community. This need is well documented in the recent Heliophysics decadal survey. Past scientific missions that have entered this region of space are Voyagers 1 & 2 but their outbound trip time was on the order of 36 years. Therefore, there is much interest in developing revolutionary propulsion techniques that will enable such Heliopause scientific missions to be completed within 10 to 15 years of the launch date.

One such enabling propulsion technique known as an Electric Sail employs positively charged multiple (10 to 100) bare wire tethers that extend radially outward from a spinning spacecraft. Around the positively charged bare-wires a Debye Sheath is created. This sheath stands off of the bare wire at a sheath diameter that is proportional to the voltage in the wire and the location within the solar system. The protons that are expended from the sun (solar wind) bounce off of these bare wire Debye sheaths and via momentum transfer, propulsive thrust is produced. The amount of thrust produced is directly proportional to the total wire length. The electrons within the solar wind are attracted to the wires and are removed from the spacecraft via an on-board electron gun.

NASA MSFC has done studies on this subject matter (2014 Phase I NASA Innovative Advanced Concepts (NIAC) award) and is doing new studies (two year Phase II NIAC awarded in July 2015) on this propellant-less and fast propulsion system. This presentation will show that this technology shall enable a scientific spacecraft the ability to reach the Heliopause within a 10 to 15 year time period or Jupiter in less than 3 years, or Pluto in 5 years.
Monday October 19th

BREAKFAST PLENARY SESSION
Developing an Electric Sail to Propel a Spacecraft to the Edge of our Galaxy in 10 Years
Bruce M. Wiegmann, NASA-MSFC Advanced Concepts Office-ED04 Huntville, AL, 35812

Room: Garden Court I & II

Monday, October 19th 9:00 AM – 12:00 PM

SESSION 1
Industrial Automation and Control Committee
POWER CONVERTER CONTROL I

Session Chairs: Dr. Arif Sarwat and Dr. S. A. Saleh
Session Organizer: Dr. Santanu Mishra
Room: Crystal II

9:00 AM | 2015-IACC-0393
Control and Implementation of a Standalone Solar Photo-Voltaic Hybrid System
Jincy Philip, Indian Institute of Technology; Jincy Philip, Indian Institute of Technology Delhi; Chinmay Jain, Indian Institute of Technology Delhi; Krishan Kant, Indian Institute of Technology Delhi; Bhim Singh, Indian Institute of Technology Delhi; Sukumar Mishra, IIT Delhi; Ambrish Chandra, ÉTS; Kamal Al Haddad, ÉTS

9:25 AM | 2015-IACC-0382
On the Employment of 1 Φ, Voltage-Source, Switch-Mode PWM, DC-AC Converters for Supplying Dielectric Barrier Discharge Devices
Saleh Saleh, University of New Brunswick; Bardlley Allen, The University of New Brunswick; Ryan Meng, The University of New Brunswick; Troy Lavigne, The University of New Brunswick; Bruce Colpitts, The University of New Brunswick

9:50 AM | 2015-IACC-0384
Power Distribution In Coupled Multiple-coil Inductors for Induction Heating Appliances
Fernando Sanz-Serrano, I3A Universidad de Zaragoza; Fernando Sanz-Serrano, Universidad de Zaragoza; Carlos Sagues, Universidad de Zaragoza; Sergio Llorente, BSH Home Appliances Group

10:30 AM | 2015-IACC-0389
Test Bench Model and Algorithms for Multi-Sources Light Electric Vehicle Energy Management System
M Hannan, Universiti Kebangsaan Malaysia; Farid Azidin, Universiti Malaysia Melaka; A Mohamed, Universiti Kebangsaan Malaysia; Mohammad Uddin, Lakehead University; Mohammad Uddin, Lakehead University

10:55 AM | 2015-IACC-0410
Comparative Study of Cycloconverter Based Double-ended Isolated Microinverter Topologies for Solar Photovoltaic AC (SPVAC) Module
Ravi Kiran Surapaneni, National University of Singapore; Akshay Rathore, National University of Singapore; Dorrai Babu Yelawerthi, National University of Singapore; Akshay Rathore, National University of Singapore; Hua Geng.

11:20 AM | 2015-IACC-0396
Power Quality Achievement using Grid Connected Converter of Wind Turbine System
Abdullah Bubshait, Colorado School of Mines; Tiago Davi Curi Busarello, University of Campinas-UNICAMP; Marcelo Simões, Colorado School of Mines; Ali Mortezaei, Colorado School of Mines

Monday, October 19th 9:00 AM – 11:30 AM

SESSION 2
Industrial Lighting and Displays Committee
DISPLAYS

Session Chairs: Hiroshi Unno, Kanagawa Institute of Technology; Kayo Suzuki, Acetatrol Ltd.
Session Organizer: Kazutaka Uehira, Kanagawa Institute of Technology
Room: Crystal III

9:00 AM | 2015-ILDC-0336
Oxide Thin-Film Transistor Technology for Flexible Organic Light-Emitting Diode Displays
Mitsuru Nakata, NHK; Hiroshi Tsuji, NHK; Yoshioide Fujisaki, NHK; Yoshihiko Nakajima, NHK; Tatsuya Takei, NHK; Genichi Motomura, NHK; Hirohiko Fukagawa, NHK; Toshimitsu Tsuzuki, NHK; Takahisa Shimizu, NHK; Naoki Shimizu, NHK; Toshihiro Yamamoto, NHK

The list of contributors on the papers submitted for this Conference was provided by the authors. IEEE is not responsible for missing or misspelled names, disambiguation of authors with similar names, or the sequence in which the names are listed.
9:30 AM | 2015-ILDC-0337
Enlargement of Continuous Perceived Depth Region in Depth-fused 3D Display
Shiro Suyama, University of Tokushima

10:00 AM | 2015-ILDC-0338
A New Displaying Technology for Information Hiding Using Temporally Brightness Modulated Pattern
Hiroshi Unno, Kanagawa Inst. & Tech.; Kazutake Uehira, Kanagawa Inst. & Tech.

11:00 AM | 2015-ILDC-0339
Low Power Driving Techniques for 1-Pixel Displays
Hiroyuki Manabe, NTT DOCOMO; Munekazu Date, NTT; Hideaki Takada, NTT; Hiroshi Inamura, NTT DOCOMO

Monday, October 19th 9:00 AM – 11:30 AM
Session 3
Electrostatic Processes Committee

Electrohydrodynamics

Session Chair: Jamal Yagoobi
Session Organizer: Rajesh Sharma
Room: Crystal IV

9:00 AM | 2015-EPC-0495
Flow Distribution Control in Meso Scale via Electrohydrodynamic Conduction Pumping
Lei Yang, Worcester Polytechnic Institute; Michal Talmor, Worcester Polytechnic Institute; Brandon Shaw, Worcester Polytechnic Institute; Kliment Minchev, Worcester Polytechnic Institute; Cheng Jiang, Worcester Polytechnic Institute; Jamal Seyyed-Yagoobi, Worcester Polytechnic Institute

9:30 AM | 2015-EPC-0486
Microplasma Actuator for EHD Induced Flow
Marius Blajan, Shizuoka University; Yoshinori Mizuno, Asahi Kogyosha Company; Akihiko Ito, Shizuoka University; Kazuo Shimizu, Shizuoka University

10:00 AM | 2015-EPC-0508
Electric Field Driven Addressing of Oil In Water Droplets In the Presence of Gradients of Ionic And Nonionic Surfactants
Jakub Tucek, University of Chemistry and Technology, Prague; Pavel Beránek, University of Chemistry and Technology, Prague; Lucie Vobecka, University of Chemistry and Technology, Prague; Zdenek Slouka, University of Chemistry and Technology, Prague; Michal Pribyl, University of Chemistry and Technology, Prague

11:00 AM | 2015-EPC-0513
Flow Characteristics of a Two Stage EHD Gas Pump in Circular Pipe
Yilma Birhane, National Taiwan University of Science and Technology; Feng Lai, University of Oklahoma; S. Lin, National Taiwan University of Science and Technology; Feng Lai, University of Oklahoma

Monday, October 19th 8:00 AM – 12:05 PM
Session 4 Part II
Systems

Session Chairs: Avoki Omekands and Megha Tak
Session Organizers: Maria Paula Puentes Castilla and Peter Magyar
Room: Crystal V

10:40 AM
Adapting the Co-optimized Reserve Market Model to the Pan-European Electricity Market Coupling
Beáta Polgári, Budapest University of Technology and Economic, Hungary

11:05 AM
Controlling Strategy Composition of Energy Storage Systems
István Táczai, Budapest University of Technology and Economic, Hungary

11:30 AM
Analysis of Attacks And Security Challenges on the Current and the Next Generation Air Traffic Communication
Sarra Ktiti, University of Passau, Germany

11:55 AM
Automation and Control Systems at Wastewater Treatment
Ines Abdennaji, National Engineering School of Gabes, Tunisia
Monday, October 19th 9:00 AM – 10:40 AM

SESSION 5
Student Sessions, Part I

APPLIANCE I

Session Chairs: Blake Lloyd and Lesley Arakkal
Session Organizers: Maria Paula Puentes Castilla and Peter Magyar
Room: Crystal VI

9:00 AM  
Test and Measurements of a Line Type Modulator for S-Band Magnetron
Deep Bhasker Patel, Pandit Deendayal Petroleum University, India

9:25 AM  
Ant Colony Optimization Based Hierarchical Data Dissemination in WSN
Boucetta Cherifa, University of Manouba, Tunisia

9:50 AM  
Examination of Sensors for Dynamic Line Rating
Imre PÁCSONYI, Budapest University of Technology and Economics, Hungary

10:15 AM  
Increasing the Safety of High Voltage Live-line Maintenance With the Use of Arc Protection Methods
Bálint Gergely HALÁSZ, Budapest University of Technology and Economics, Hungary

Monday, October 19th 10:00 AM – 12:05 PM

SESSION 5
Student Sessions, Part II

APPLIANCE II

Session Chairs: Dave B. Durocher and Srikantan Vasudevan
Session Organizers: Maria Paula Puentes Castilla and Peter Magyar
Room: Crystal VI

10:40 AM  
Industrial Mobile Solution for all kind of products “Get it Free”
Akram Marzouki, ULT University of Tunis, Tunisia

11:05 AM  
A SiC-Based Power Supply for Dielectric Barrier Discharge Excilamps
Vanessa Rueda, Pontificia Universidad Javeriana, Colombia

11:30 AM  
Design, Modelling, Fabrication and Control of a Levitation Prototype for a Steel Ball
Janardan Kundu, Indian Institute of Engineering, Science & Technology, India

Monday, October 19th 9:00 AM – 12:00 PM

SESSION 6
Electric Machines Committee

SESSION NAME:

Session Chair: Suryanarayana Doola
Session Organizer: Mircea Popescu
Room: Crystal VII

9:00 AM  | 2015-EMC-0303
A Simplified Mathematical Approach to Model and Analyze
Magnet Defects Fault Signatures in Permanent Magnet
Synchronous Motors
Mohsen Zafarani, University of Texas at Dallas; Taner Goktas, University of Texas at Dallas; Bilal Akin, University of Texas at Dallas

9:30 AM  | 2015-EMC-0302
Coenergy Based Transient Model of Interior Permanent
Synchronous Machines
Roy Schultz, GE Transportation; Lin Zhao, Gannon University

10:00 AM  | 2015-EMC-0358
Comparative Analysis of Segmental Rotor Type Switched
Reluctance Motor with Single Teeth Winding
Zhenyao Xu; Dong Hee Lee, Kyungsung University; Jin-Woo Ahn, Kyungsung University

11:00 AM  | 2015-EMC-0305
Equivalent Inductance Model of Double-pole Induced
Excitation Synchronous
Hui Zhong, Shandong University; Lin Zhao, Gannon University

11:30 AM  | 2015-EMC-0304
New Shunt Calorimeter for Testing Electric Motors
Lassi Aarniovuori, Lappeenranta University of Technology; Wenping Cao, Queen’s University Belfast; Huifeng Chen, Queen’s University Belfast; Nan Yang, Queen’s University Belfast

Monday, October 19th 2:00 PM – 6:00 PM

SESSION 7
Industrial Automation and Control Committee

ADVANCED CONTROLS

Session Chair: Dr. Babak Nahidmobarakeh
Session Organizers: Dr. Kashem Muttaqi and Dr. Norman Anglani
Room: Crystal II

2:00 PM  | 2015-IACC-0387
Recursive Identification for Electric Arc Furnace – Electrode
Regulator System
Feng Yu, Northeastern University; Zhizhong Mao, Northeastern University; Zhi Xie, Northeastern University; Dianhua Zhang, Northeastern University; Wenjing Lin, Northeastern University
2:30 PM | 2015-IACC-0397
A New Model Of Electromechanical Relays for Predicting the Motion And Electromagnetic Dynamics
Edgar Ramirez-Laboreo, I3A – Universidad de Zaragoza; Carlos Sagues, I3A – Universidad de Zaragoza; Sergio Llorente, BSH Home Appliances Group

3:00 PM | 2015-IACC-0400
Soft Constrained Finite Horizon Model Predictive Control
Masood Askari, University of Malaya; Haider Almurb, The University of Nottingham Malaysia Campus; Mahmoud Moghavvemi, University of Malaya; Haider Almurb, The University of Nottingham Malaysia Campus; Ahmed Haidar, University of Wolongong

3:30 PM | 2015-IACC-0419
On-line Estimation of Lithium Polymer Batteries State-of-charge Using Particle Filter Based Data Fusion With Multi-Models
Daming Zhou, University of Technology of Belfort-Montbéliard; Alexandre Ravey, University of Technology of Belfort-Montbéliard; Fei Gao, University of Technology of Belfort-Montbéliard; Abdellatif Mirouzi, University of Technology of Belfort-Montbéliard; Ke Zhang, Northwestern Polytechnical University

4:00 PM | 2015-IACC-0420
A Modified Relevance Vector Machine for PEM Fuel Cell Stack Aging Prediction
Yiming Wu, UTBM; Elena Brea, UTBM; Fei Gao, UTBM; Abdellatif Mirouzi, UTBM

5:00 PM | 2015-IACC-0421
Performance Evaluation of the ZIP Model-Phaselet Frame Approach for Identifying Appliances in Residential Loads
Petrus Pijnenburg, UNB; Saleh Saleh, University of New Brunswick; Peter McGaw, University of New Brunswick

5:30 PM | 2015-IACC-0422
Autonomy and User Experience Enhancement Control of an Electrically Assisted Bicycle with Dual-wheel Drive
Michael Guarisco, UTBM; Fei Gao, UTBM; Damien Paire, UTBM

Monday, October 19th | 2:00 PM – 5:30 PM

SESSION 8
Industrial Lighting and Displays Committee

LED & OLED DRIVERS

Session Chairs: Ray-Lee Lin, NCKU, Taiwan; Marco A. Dalla Costa, UFSM, Brazil
Session Organizer: Marcos Alonso, University of Oviedo, Spain
Room: Crystal III

2:00 PM | 2015-ILDC-0318
Bidirectional OLED Buck Driver
Ray-Lee Lin, National Cheng Kung University; Jhong-Yan Tsai, National Cheng Kung University; David Buso, Université de Toulouse; Georges Zissis, University of Toulouse

2:30 PM | 2015-ILDC-0319
High-Power-Factor LED Driver Based on Input Current Shaper Using a Flyback Converter
Guilherme Pereira, UFSM; Marco Dalla-Costa, UFSM; Maicol Melo, Universidade Federal de Santa Maria; José Alonso, Universidad de Oviedo

3:00 PM | 2015-ILDC-0320
A Single-stage Single-switch LED Driver Based on Class E Converter
Yijie Wang, Harbin Institute of Technology; Jiaoping Huang, Harbin Institute of Technology; Wei Wang, Harbin Institute of Technology; Dianguo Xu, Harbin Institute of Technology

3:30 PM | 2015-ILDC-0335
A Review on Switched Capacitor Converters with High Power Density for OLED Lamp Driving
Gilberto Martinez, Continental Automotive; J Marcos Alonso, University of Oviedo

4:00 PM | 2015-ILDC-0329
Self-Oscillating Series-resonant LED Driver Applied to Reduce Low-frequency Current Ripple Transmission
Marco Melo, Universidade Federal de Santa Maria; William Vizzotto, Federal University of Santa Maria; Maikel Menke, Federal University of Santa Maria; Marco Dalla-Costa, UFSM; Alysson Seidel, Universidade Federal de Santa Maria; J Marcos Alonso, University of Oviedo

5:00 PM | 2015-ILDC-0333
Low Profile LED Off-Line Phase-Cut Dimming Ballast with Piezoelectric Transformer
Li Le, Fraunhofer IZM; Yujia Yang, Fraunhofer IZM; Matthias Radecker, Fraunhofer IZM

Monday, October 19th | 2:00 PM – 6:00 PM

SESSION 9
Electrostatic Processes Committee

NON THERMAL PLASMA AND ENVIRONMENTAL APPLICATIONS

Session Chair: Kazuo Shimizu
Session Organizer: Masaaki Okubo
Room: Crystal IV

2:00 PM | 2015-EPC-0533
Photo Electrochemical Characterization of Titania Photoanodes Fabricated Using Varying Anodization Parameters
Rajesh Sharma, Arkansas State University; Keith Arnout, Arkansas State University; Kevin Hart, Arkansas State University; Maqsood Mughal, Arkansas State University; Robert Engelken, Arkansas State University

2:30 PM | 2015-EPC-0492
Ozone Emission and Electrical Characteristics of Ionizers With Different Electrode Materials, Numbers, and Diameters
Hak-Joon Kim, Korea Institute of Machinery and Materials; Bangwoo Han, Korea Institute of Machinery and Materials; Chang-Gyu Woo, Korea Institute of Machinery and Materials; Yong-Jin Kim, Korea Institute of Machinery and Materials; Seong-Jun Park, Innoens Co., Ltd.; Jong-Pil Yoon, ECO ENERGEN Co., Ltd.
3:00 PM | 2015-EPC-0507
CO2 Concentration Using Adsorption and Non-thermal Plasma Desorption
Masaaki Okubo, Osaka Prefecture University; Hideaki Yamada, Ministry of Land, Infrastructure, Transport and Tourism; Keiichiro Yoshida, Osaka Institute of Technology; Takuya Kuwahara, Nippon Institute of Technology; Tomoyuki Kuroki, Osaka Prefecture University

3:30 PM | 2015-EPC-0501
Removal of High Concentration of Nitrous Oxide for Anesthetic Gas Using Nonthermal Plasma Combined with Adsorbent
Tomoyuki Kuroki, Osaka Prefecture University; Toshiaki Yamamoto, Osaka Prefecture University; Shunsuke Nishii; Masayuki Akita, Enomoto BeA Co., Ltd.; Masaaki Okubo, Osaka Prefecture University

4:30 PM | 2015-EPC-0498
Electrostatic Precipitation of Diesel PM at Reduced Gas Temperature
Mitsuhiro Takasaki, Toyohashi University of Technology; Toma Kubota, Toyohashi University of Technology; Masahiro Hayashi, Toyohashi University of Technology; Hirofumi Kurita, Toyohashi University of Technology; Kazunori Takashima, Toyohashi University of Technology; Akira Mizuno, Toyohashi University of Technology

5:00 PM | 2015-EPC-0494
Pilot-scale Exhaust Gas Treatment for a Glass Manufacturing System Using a Plasma Combined Semi-dry Chemical Process
Hashira Yamamoto, Nihon Yamamura Glass Co., Ltd.; Tomoyuki Kuroki, Osaka Prefecture University; Hidekatsu Fujishima, Osaka Prefecture University; Yuri Yamamoto; Kota Yoshida; Masaaki Okubo, Osaka Prefecture University

Monday, October 19th 2:00 PM – 3:40 PM
SESSION 10
Student Session, Part I
ZUCKER DESIGN TEAM CONTEST
Session Chairs: David B. Durocher and Taqwa Saeed
Session Organizers: Maria Paula Puentes Castilla and Peter Magyar
Room: Crystal V

2:00 PM
Design of a Savonius Wind Turbine
Emmanouil Bafounis-Kottas, Democritus University of Thrace, Greece

2:35 PM
Energy Demand Impact due to Mass Use of Electrical Vehicles and future Demand Side Management Strategies
Carlos D. Rojas, Universidad Nacional de Colombia, Colombia

3:00 PM
Design-Build of a Hydroelectric Generator Airgap Measurement System
Brad Coleman, University of Calgary, Canada

3:25 PM
Design of Elevator Control System Using PLC
Gaurav Singh, Pandit Deendayal Petroleum University, India

Monday, October 19th 2:00 PM – 3:40 PM
SESSION 11
Student Session, Part I
POWER ELECTRONICS
Session Chairs: Tomy Sebastain and Christina Malliou
Session Organizers: Maria Paula Puentes Castilla and Peter Magyar
Room: Crystal VI

2:00 PM
Dual Inverter Design for Automotive Applications
Subhadeep Bhattacharya, McGill University, Canada

2:25 PM
Operation and Analysis of a Bidirectional DC-DC Converter for Renewable Power Generation using Microgrids
Zeal Shah, Pandit Deendayal Petroleum University, India
Monday, October 19th 2:00 PM – 6:00 PM

SESSION 12
Industrial Automation and Control Committee
MOTOR DRIVES I

Session Chairs: Dr. Osama A. Mohammed and Dr. Akshay Rathore
Session Organizer: Jingbo Liu
Room: Crystal VII

2:00 PM | 2015-IACC-383
A Single Sensor Based Bridgeless Landsman PFC Converter Fed BLDC Motor Drive
Praveen Singh, IIT DELHI; Bhim Singh, Vashist Bist, IIT DELHI; Ambrish Chandra, École de technologie supérieure, Kamal Al Haddad, ÉTS

2:30 PM | 2015-IACC-0388
Control of Doubly Fed Induction Generator in Standalone Wind Energy Conversion System
Shailendra Sharma, Shri G. S. Institute of Technology & Science; Bhim Singh, Indian Institute of Technology Delhi; Ambrish Chandra, ÉTS; Kamal Al Haddad, ÉTS

3:00 PM | 2015-IACC-0390
Self-Sensing Control of Permanent-Magnet Synchronous Machines with Multiple Saliciencies Using Pulse-Voltage-Injection
Lei Chen, Robert Bosch GmbH; Gunther Götting, Robert Bosch GmbH; Simon Dietrich, Robert Bosch GmbH; Ingo Hahn, University of Erlangen-Nuremberg

3:30 PM | 2015-IACC-0392
Stabilized Suspension Control Strategy at failure of a Motor Section in a d-q Axis Current Control Bearingless Motor
Masahide Ooshima, Tokyo University of Science, Suwa; Ayumu Kobayashi; Takayoshi Narita, Tokyo University of Science, Suwa

4:30 PM | 2015-IACC-0395
Harmonic Injection Based Adaptive Control of IPM Motor Drive for Reduced Motor Current Harmonics
Garin Schoonhoven, Lakehead University; Mohammad Uddin, Lakehead University

5:00 PM | 2015-IACC-0398
Predictive Torque Control with Zero-Sequence Current Suppression for Open-End Winding Induction Machine
Bohang Zhu, University of Texas at Dallas; Rajashekar Kaushik, University of Texas at Dallas; Hajime Kudo, MEIDENSHA CORPORATION

5:30 PM | 2015-IACC-0404
Online Monitoring of Unbalanced Rotor Fault Detection of an IM Drive – Time and Frequency Domain Analyses
Md. Rahman, Lakehead University; Mohammad Uddin, Lakehead University

Monday, October 18-22, 2015 | 50TH ANNUAL MEETING | INDUSTRY APPLICATIONS SOCIETY
Monday, October 19th  2:00 PM – 6:00 PM

SESSION 13
Metals Committee

METALS ELECTRICAL DISTRIBUTION, HARMONICS, POWER QUALITY

Session Chair: Dr. Cheng-Tsung Liu
Session Organizer: Tom Dionise
Room: Colonnade

2:00 PM  |  2015-METC-0362
State Estimation Based Determination of Harmonic Current Contributions of Iron and Steel Plants Supplied from PCC
Erhan Sezgin, Gazi University; Murat Gol, Middle East Technical University; Ozgul Solor, Tubitak-Uzay Metu Campus

2:30 PM  |  2015-METC-0363
Installation, Startup and Performance of a Static Var Compensator for an Electric Arc Furnace Upgrade
Sam Morello, ARM EnerTech Associates, LLC; Thomas Dionise, Eaton Corporation; Thomas Mank, Standard Steel, LLC

3:00 PM  |  2015-METC-0364
Online Characterization of Interharmonics and Harmonics of AC Electric Arc Furnaces by Multiple Synchronous Reference Frame Analysis
Eda Uz-Logoglu, Middle East Technical University; Ozgul Solor, Tubitak-Uzay Metu Campus; Muammer Ermis, Middle East Technical University

3:30 PM  |  2015-METC-0365
Design and Implementation of a Hybrid System for the Mitigation of PQ Problems of Medium-Frequency Induction Steel-Melting Furnaces
Ilker Yilmaz, Middle East Technical University; Emre Durna, Middle East Technical University; Muammer Ermis, Middle East Technical University

4:00 PM  |  2015-METC-0366
Correlation Between Multiple Electric Arc Furnace Operations and Unscheduled Power Flows in the Interconnection Lines at the Eastern Cross Border of ENTSO-E
Erinc Altintas, Gazi University; Ozgul Solor, Tubitak-Uzay Metu Campus; Umit Buyukdagli, TEIAS; Isik Cadirci, Hacettepe University; Muammer Ermis, Middle East Technical University

4:30 PM  |  2015-METC-0367
Hybrid Simulation of Power Quality Assessment An Application for Power Ground Grid in Arc Furnace Systems
Eduardo Cano-Plata, Universidad Nacional de Colombia; Guillermo Jimenez-Lozano, National University of Colombia; Armando Ustariz-Farfan, National University of Colombia; Oscar Soto, National University of Colombia; Juan Ocampa-Wilches, National University of Colombia; Maria Cortes, National University of Colombia; Jorge Estrada, National University of Colombia

5:00 PM  |  2015-METC-0368
On the Application of Single-phase Voltage Sag Compensators in Three-Phase Systems
Igor Pires, Universidade Federal de Minas Gerais; Filipe de Oliveira, UFMG; Sidelmo Silva, Universidade Federal de Minas Gerais; Braz Cardoso, Federal University of Minas Gerais

Tuesday, October 20th  8:00 AM – 12:00 PM

SESSION 14
Power Systems Engineering Committee

SESSION NAME:

Session Chair: Fabio Freschi
Session Organizer: Kent Sayler
Room: Crystal I

8:00 AM  |  2015-PSEC-0609
A Linear Program for System Level Control of Regional PHEV Charging Stations
Asama Kulvanitchaiyakunt, The University of Texas at Arlington; Piampoon Sarikprueck, King’s Mongkut Institute of Technology Ladkrabang; Wei-Jen Lee, University of Texas at Arlington; Jay Rosenberger, The University of Texas at Arlington; Victoria Chen, University of Texas at Arlington

8:30 AM  |  2015-PSEC-0610
Optimization of Data Center Battery Storage Investments for Microgrid Cost Savings, Emissions Reduction, and Reliability Enhancement

9:00 AM  |  2015-PSEC-0611
An Induction Generator based AC/DC Hybrid Electric Power Generation System for More Electric Aircraft
Yijiang Jia, University of Texas at Dallas; Rajashekar Kaushik, University of Texas at Dallas

9:30 AM  |  2015-PSEC-0613
Coherent Groups Identification under High Penetration of Non-synchronous Generation – A Koopman Mode Analysis Approach
Harold Chamorro, KTH Royal Institute of Technology; Mehrdad Chandrahi, KTH Royal Institute of Technology; Robert Eriksson, Technical University of Denmark

10:30 AM  |  2015-PSEC-0614
Trip Curves and Ride-Through Evaluation for Power Electronics Devices in Power System Dynamic Studies
Xiaodong Liang, Memorial University of Newfoundland; John Hofman, Burns and McDonnell
SESSION 15
Industrial Automation and Control Committee
POWER CONVERTER CONTROL II

Session Chairs: Dr. Osama A. Mohammed and Dr. Akshay Rathore
Session Organizer: Dr. S. A. Saleh
Room: Crystal II

8:00 AM | 2015-IACC-0399
Multifunctional Control Strategy for Asymmetrical Cascaded H-Bridge Inverter in Microgrid Applications
Ali Mortezazaei, Colorado School of Mines; Marcelo Simões, Colorado School of Mines; Abdullah Bubshait, Colorado School of Mines; Tiago Busarello, University of Campinas – UNICAMP; Fernando Marafão, Unesp – Univ Estadual Paulista; Ahmed Al Durra, Petroleum Institute

8:30 AM | 2015-IACC-0401
A Coordinated Control Approach for DC link and Rotor Crowbars to Improve Fault Ride-Through of DFIG based Wind Turbines
Ahmed Haidar, University of Wollongong; Kashem Muttaqi, University of Wollongong; Mehrdad Haghi, University of Wollongong

9:00 AM | 2015-IACC-0402
Parasitics Assisted Soft-switching and Naturally Commutated Current-fed Bidirectional Push-pull Voltage Doubler
Debjani Chakraborty, National University of Singapore; Akshay Rathore, National University of Singapore; Elena Breaz, UTBM; Akshay Rathore, National University of Singapore; Fei Gao, University of Technology of Belfort-Montbéliard

9:30 AM | 2015-IACC-0403
Optimal Pulsewidth Modulation of Medium-Voltage Modular Multilevel Converter
Akshay Rathore, National University of Singapore; Amarendra Edpuganti, National University of Singapore

10:00 AM | 2015-IACC-0404
Modeling and Control of a Low Speed Flywheel Driving System for Pulsed Load Mitigation in DC Distribution Networks
Ahmed Elsayed, Florida International University; Osama Mohammed, Florida International University; Tarek Yossef, Florida International University

11:00 AM | 2015-IACC-0407
An Active Life Extension Strategy for Power Switches in Interleaved Converters
Serkan Dusmez, University of Texas at Dallas; Syed Huzail, University of Texas – Dallas; Bilal Akin, University of Texas at Dallas

11:30 AM | 2015-IACC-0394
Modeling, Control and Modulation Strategy of a Three-Phase 4-Switch PWM Voltage-source Rectifier Based on Novel Non-Orthogonal Coordinate
Zhiyang Zeng, Zhejiang University; Chong Zhu, Zhejiang University; Qingwei Yuan, Zhejiang University; Rongxiang Zhao, Zhejiang University; Weiyi Zheng, Zhejiang University; Rongxiang Zhao, Zhejiang University
Tuesday, October 20th 8:00 AM – 12:00 PM

SESSION 17
Power Systems Engineering Committee

**POWER SYSTEMS ENGINEERING I**

Session Chair: Kent Sayler
Session Organizer: Kent Sayler
Room: Crystal IV

8:00 AM | 2015-PSEC-0581
The TN-Island System for Cold Ironing
Giuseppe Parise, Sapienza University of Rome; Luigi Parise, Sapienza University; P. (Ben) Chavdarian, Port of Long Beach; Stefano Sabatini, Sapienza University; Chun-Lien Su, National Kaohsiung Marine University

8:30 AM | 2015-PSEC-0582
Neutral Grounding in MV Transformers Substations for Cranes Service
Giuseppe Parise, Sapienza University of Rome; Luigi Parise, Sapienza University of Rome; Marco Martufi, Sapienza University of Rome; Chun-Lien Su, National Kaohsiung Marine University; P. (Ben) Chavdarian, Port of Long Beach; Sergio Panetta, I-Gard Corp.

9:00 AM | 2015-PSEC-0583
Modelling Power Flow In A Hoist Motor of a Rubber Tyred Gantry crane
Stefano Pietrosanti, University of Reading; William Holderbaum, University of Reading; Victor Becerra, University of Reading

9:30 AM | 2015-PSEC-0584
Impact of Shunt Active Harmonic Filter on Harmonic Current Distortion of Voltage Source Inverter-Fed Drives
Wei-Hsiang Ko, National Taiwan University of Science and Technology; Jyh-Cherng Gu, National Taiwan University of Science and Technology

10:30 AM | 2015-PSEC-0585
A Harmonic Power Flow Program Aimed at Analyzing Distortion Effects Caused by Industrial Customers
Gonzalo Constante-Flores, Escuela Politecnica Nacional; Gabriela Cabrera-Cel, Escuela Politecnica Nacional; Franklin Guilumba, Escuela Politecnica Nacional; Jesús Játilva-llarra, Escuela Politecnica Nacional; Wei-Jen Lee, University of Texas at Arlington

11:00 AM | 2015-PSEC-0586
Distributed Generation System’s Impact on Power Quality
Uthane Supatti, Kasetsart University, Si Racha Campus; Sarayuth Wetchakama, Provincial Electricity Authority (PEA)

11:30 AM | 2015-PSEC-0587
Arc Flash Analysis in Dual-fed Substations
CeZary Jach, SLAC National Accelerator Laboratory; Slawomir Olek, SLAC National Accelerator Laboratory; Mohammad Mehtabuddin, SLAC National Accelerator Laboratory

Tuesday, October 20th 8:00 AM – 12:00 PM

SESSION 18
Mining Committee

**MINING INDUSTRY APPLICATIONS I**

Session Chair: Miguel Angel Reyes
Session Organizer: Miguel Angel Reyes
Room: Crystal V

8:00 AM | 2015-MIC-0663
3D FEM Thermal and Electrical Analysis of Copper Electrowinning Intercell Bars
Eduardo Wiedemann, University of Concepcion; Anibal Morales, University of Concepcion; Pablo Aqueveque, University of Concepcion; Jorge Henriquez, University of Concepcion; Luis Munoz, University of Concepcion

8:30 AM | 2015-MIC-0656
A New Method for Power System Load Modeling Using a Nonlinear System Identification Estimator
Mohsen Jahromi, The University of Newcastle; Steven Mitchell, The University of Newcastle; Galina Mirzaeva, University of Newcastle; David Gay, The University of Newcastle

9:00 AM | 2015-MIC-0652
An Electrical Impact Study Between Variable Speed Dual Pinion Mills and Gearless Mill Drives
Mazyar Laylabadi, Fluor Canada; Athol Symonds, Fluor Canada

9:30 AM | 2015-MIC-0666
Antenna Arrangement Investigation for Through-the-Earth (ITE) Communications in Coal Mines
Lincan Yan, NIOSH; Carl Sunderman, NIOSH; Bruce Whisner, NIOSH; Nicholas Damiano, NIOSH; Chenming Zhou, NIOSH

10:30 AM | 2015-MIC-0655
Defining the Industrial Demilitarized Zone and its Benefits for Mining Applications
David Mazur, Rockwell Automation; John Kay, Rockwell Automation; Rob Entzminger, Rockwell Automation; Peter Morell, Rockwell Automation; Erik Syme, ProSoft Technology

11:00 AM | 2015-MIC-0659
Economic and Technical Evaluation of Solar Assisted Water Pump Stations for Mining Applications: A Case of Study
Daniel Sbarbaro, Universidad de Concepción, Mario Montorfano, University of Concepcion; Luis Morán,

11:30 AM | 2015-MIC-0653
Employing DC Transmission in Long Distance AC Motor Drives: Analysis of the Copper Economy and Power Losses Reduction in Mining Facilities
Hélder De Paula, Federal University of Minas Gerais – UFMG; Vinicius De Paula, Federal University of Uberlândia – UFU
Tuesday, October 20th 8:00 AM – 12:00 PM

SESSION 19
Industrial Lighting and Display Committee

LAMPS & LIGHTING SYSTEMS

Session Chairs: Francis Dawson, University of Toronto, Canada; Yijie Wang, HIT, China
Session Organizer: Marcos Alonso, University of Oviedo, Spain
Room: Crystal VI

8:00 AM | 2015-ILDC-0323
Retrofit LED Lamps: Photometric Flicker Analysis
Leos Kuka, Technical University in Liberec; Pascal DUPUIS, Universite Paul Sabatier; Georges Zissis, Universite Paul Sabatier; Milan Kola, Technical University of Liberec

8:30 AM | 2015-ILDC-0324
Yuzrisal Musakir, PT PLN (Persero); Pascal DUPUIS, Universite Paul Sabatier; Ngapuli Sinisuka, Institut Teknologi Bandung; Georges Zissis, University of Toulouse

9:00 AM | 2015-ILDC-0334
Finite Element Analysis of a Variable Inductor for a RSCC Based LED Lamp Driver
Marina Perdigao, Instituto de Telecomunicacoes; S. Ferreira, Instituto de Telecomunicacoes; M. Martins, Instituto de Telecomunicacoes; A. Mendes, Instituto de Telecomunicacoes; J Marcos Alonso, University of Oviedo

9:30 AM | 2015-ILDC-0328
Determination of Radiative Properties for Water-Wall Plasma Arc Lamp Modelling
Yann Cressault, Universite de Toulouse; Francis Dawson, University of Toronto; Dave Camm, Camm Consulting; Markus Liederer, Mattson Technologies; Harpreet Grover, University of Toronto

10:30 AM | 2015-ILDC-0330
A Unified Switching Strategy in Bidirectional Grid Interface DCM Flyback Stages for Public Lighting Systems with Microgeneration Capability
Pablo J. Quintana, University of Oviedo; Jorge Garcia, University of Oviedo; Jesus Cardesin, Universidad de Oviedo; Emilio Corominas, Universidad de Oviedo

11:00 AM | 2015-ILDC-0321
Fast Dynamics Current Control of DCM Flyback as PFC Front Converter for Lighting Applications
Pablo J. Quintana, University of Oviedo; Jorge Garcia, University of Oviedo; Jesus Cardesin, Universidad de Oviedo; Maicol Melo, Universidad Federal de Santa Maria; Marco Dalla-Costa, Universidade Federal de Santa Maria

11:30 AM | 2015-ILDC-0326
A Study of Electrodeless Fluorescent Lamp’s Cores of Ferrite NB7 and IP12E
Natalia Chagas, UFSM/UNIPAMPA; Veridiane Rosa, UFSM; Marcelo da Silva, UFSM; Ricardo Nederson de Prado, Federal University of Santa Maria
Tuesday, October 20th  8:00 AM – 12:00 PM

SESSION 21
Power Systems Protection Committee

POWER SYSTEMS PROTECTION

Session Chair: Gary Fox
Session Organizer: Rob Hoerauf
Room: Colonade

8:00 AM | 2015-CSC-0274
Dennis Neitzel, AVO Training Institute, Inc.

8:30 AM | 2015-PSEC-0622
Utility-Accessible External Disconnect Switch Suppression in PV Microgeneration: Brazilian Scenario
Fernando Amaral, Centro Federal de Educação Tecnológica de Minas Gerais; Nicole Foureaux, Federal University of Minas Gerais; Sidelmo Silva, Universidade Federal de Minas Gerais; José Brito, COELBA; Braz Filho, UFMG

9:00 AM | 2015-PSPC-0449
Testing Microprocessor-based Numerical Transformer Differential Protection
W.A. Alex Lee, American Electric Power; Jun Verzosa

Tuesday, October 20th  2:00 PM – 6:00 PM

SESSION 22
Power Systems Engineering Committee

POWER SYSTEMS ENGINEERING II

Session Chair: Sergio Panetta
Session Organizer: Kent Sayler
Room: Crystal I

2:00 PM | 2015-PSEC-0616
Non-Interruptible Energy Transfer Algorithm Applied to Multi-Terminal VSC-HVDC with Modular Multilevel Converter
Gum Tae Son, LS Industrial Systems; HyunWoo Lee, YONSEI University; DongHee Choi, YONSEI University; Jung-Wook Park, Yonsei University

2:30 PM | 2015-PSEC-0617
Analysis and Mitigation of Parallel Resonance in the Distribution System
Bhim Singh, Indian Institute of Technology Delhi; Ikhlao Hussain, Indian Institute of Technology Delhi; Ambrish Chandra, ÉTS; Kamal Al Haddad, ÉTS

3:00 PM | 2015-PSEC-0618
Determining the Reactive Power from the Active Power in Single Phase Systems Using the Extended Newton-Phaselet Method
Saleh Saleh, University of New Brunswick

3:30 PM | 2015-PSEC-0619
Analysis of Star-Star-Delta_Utilized Transformer Under Balanced and Unbalanced Load Conditions
Athul Muraleedharanpillai Vasanthakumary, Amrita School of Engineering; Preetha P. K, Amrita School Of Engineering; P. S. Chandramohan Nair, ANERT, Govt. of Kerala

Tuesday, October 20th  2:00 PM – 6:00 PM

SESSION 23
Industrial Automation and Control Committee

POWER SYSTEM CONTROL I

Session Chairs: Dr. M. D. Kankam and Dr. Anurag Srivastava
Session Organizer: Dr. Akshay Rathore
Room: Crystal II

2:00 PM | 2015-IACC-0411
Intelligent Control Algorithms for Optimal Reconfiguration of Microgrid Distribution System
Farshid Shariatzadeh, Spirae; Anurag Srivastava, Washington State University; Nikhil Kumar, General Electric; Anurag Srivastava, Washington State University

2:30 PM | 2015-IACC-0412
Intelligent Volt/VAR Control Algorithm for Active Power Distribution System to Maximize the Energy Savings
Rahul Anilkumar, Quanta; Anurag Srivastava, Washington State University; Grief Devriese, Power Engineers; Anurag Srivastava, Washington State University

3:00 PM | 2015-IACC-0408
Smart Grid Topology Identification Using Sparse Recovery
Mohammad Babakmehr, Colorado School of Mines; Marcelo Simões, Colorado School of Mines; Michael Wakin, Colorado School of Mines; Ahmad Al Durra, Petroleum Institute; Farnaz Harirchi, Colorado School of Mines

3:30 PM | 2015-IACC-0386
A Decentralized Model Predictive Control for Operation of Multiple Distributed Generators in Islanded Mode
Michael Negnevitsky, University of Tasmania; Ahmad Tavakoli, University of Tasmania; Kashem Muttaqi, University of Wollongong

4:30 PM | 2015-IACC-0435
Fast Bus Protection Using IEC 61850
Cassandra Goff, Tennessee Valley Authority; Ahmed Eltom, University of Tennessee at Chattanooga; Haytham Saeed, University of Tennessee at Chattanooga

5:00 PM | 2015-IACC-0436
A New Approach to Reduce the Non-Linear Characteristics of a Stressed Power System by Using the Normal Form Technique in the Control Design of the Excitation System
Hadi Lomei, University of Wollongong; Kashem Muttaqi, University of Wollongong; Danny Sutanto, University of Wollongong; Mohsen Assili, Shahrood University of Technology
Tuesday, October 20th 2:00 PM – 6:00 PM

SESSION 25
Power Systems Engineering Committee

POWER SYSTEMS ENGINEERING III

Session Chair: Massimo Mitolo
Session Organizer: Kent Sayler
Room: Crystal IV

2:00 PM | 2015-PSEC-0588
Value of Insulated Bus Bars in Reducing Arc Fault Duration in Low Voltage Systems

2:30 PM | 2015-PSEC-0589
District Heating Safety Issues: Interactions Between Grounding Systems and Thermal Installations
Giulio Cerino, Politecnico di Torino; Fabio Freschi, Politecnico di Torino; Massimo Mitolo, ESI; Alberto Poggio, Politecnico di Torino; Michele Tartaglia, Politecnico di Torino

3:00 PM | 2015-PSEC-0590
Electrical Model of Building Structures Under Ground-Fault Conditions, Part II
Massimo Mitolo, Engineering Systems Inc. (ESI); Fabio Freschi, Politecnico di Torino; Riccardo Tommasini, Politecnico di Torino

3:30 PM | 2015-PSEC-0591
Effects on the Results of the Fall of Potential Test When Using Sky Wires for the Remote Current Probe
Eduardo Enrique, Stantec Consulting Ltd.

4:30 PM | 2015-PSEC-0592
Why Existing Utility Metrics Do Not Work for Industrial Reliability Analysis
Robert Schuerger, HP Critical Facilities Services; Robert G. Arno, Harris Advanced Info Systems; Neal Dowling, Mtechronology

5:00 PM | 2015-PSEC-0593
Quantitative Evaluation of Wind Turbine Faults Under Variable Operational Conditions
Xiaohang Jin, University of Nebraska-Lincoln; Yayu Peng, University of Nebraska-Lincoln; Fangzhou Cheng, University of Nebraska-Lincoln; Wei Qiao, University of Nebraska-Lincoln; Liyan Gu, University of Nebraska-Lincoln

5:30 PM | 2015-PSEC-0594
Li Wang, National Cheng Kung University; Thi Mi Sa Nguyen, Hochiminh City University of Technology and Education; Dinh-Nhon Truong, Hochiminh City University of Technology and Education; Van-Thai-Nguyen, Hochiminh City University of Technology and Education; Anton V. Prokhorov, Tomsk Polytechnic University
Tuesday, October 20th
2:00 PM – 6:00 PM

SESSION 26
Mining Committee

MINING INDUSTRY APPLICATIONS II

Session Chair: Nicholas Damiano
Session Organizer: Miguel Angel Reyes
Room: Crystal V

2:00 PM | 2015-MIC-0651
Influence of Environmental Aspects Upon the Reliability of Motor Drive Systems: Evaluation Based on Fuzzy Rules
Frederico Souza; Helder De Paula, Federal University of Minas Gerais – UFMG; Anderson Rocha, CEFET-MG – Coordenação de Eletrotécnica

2:30 PM | 2015-MIC-0664
Intercell Busbar Design for Copper Electrowinning
Eduardo Wielchmann, University of Concepcion; Anibal Morales, University of Concepcion; Pablo Aqueveque, University of Concepcion; Esteban Pino, University of Concepcion; Luis Munoz, University of Concepcion; Jorge Henriquez, University of Concepcion

3:00 PM | 2015-MIC-0654
Medium Frequency Signal Propagation Characteristics of a Lifeline as a Transmission Line in Underground Coal Mines
Jingcheng Li, The National Institute for Occupational Safety and Health; Miguel Reyes, The National Institute for Occupational Safety and Health; Nicholas Damiano, National Institute for Occupational Safety and Health; Bruce Whisner, The National Institute for Occupational Safety and Health; Rudy Mateic, The National Institute for Occupational Safety and Health

3:30 PM | 2015-MIC-0657
Multi-Mega VAR Passive Filters for Mining Applications: Practical Limitations and Technical Considerations
Luis Moran, Cristobal Albistur, Rolando Burgos,

4:30 PM | 2015-MIC-0665
On the Design Robustness and Long Term Performance of the Most Used Electrodes in the Copper Electrowinning Industry
Eduardo Wielchmann, University of Concepcion; Anibal Morales, University of Concepcion; Pablo Aqueveque, University of Concepcion; Esteban Pino, University of Concepcion; Leonardo Aburto, Minera Spence

5:00 PM | 2015-MIC-0661
Payload Estimation in AC Electric Mining Shovels Using Drive Signals
M. Anibal Valenzuela, University of Concepcion; Matias Valenzuela G., University of Concepcion

5:30 PM | 2015-MIC-0662
Robust Estimation and Protection of Locked Charge in Grinding Mills
M. Anibal Valenzuela, University of Concepcion; Pablo Castro, University of Concepcion

Tuesday, October 20th
2:00 PM – 6:00 PM

SESSION 27
Industrial Lighting and Display Committee

LED & OLED LIGHTING SYSTEMS

Session Chairs: Georges Zissis, University of Tolouse, France; Marcos Alonso, University of Oviedo, Spain
Session Organizer: Marcos Alonso, University of Oviedo, Spain
Room: Crystal VI

2:00 PM | 2015-ILDC-0325
A Characterization Framework to Optimize LED Luminaire’s Luminous Efficacy
Angel Barroso, Université Paul Sabatier; Pascal Dupuis, Université Paul Sabatier; Corinne Alonso, Université Paul Sabatier; Bruno Jamess, Université Paul Sabatier; Lionel Séguier, Université Paul Sabatier; Georges Zissis, Université de Toulouse

2:30 PM | PRESENTATION ONLY
Interfacing Low Voltage dc for Lighting with Mains and Local Production-Storage Facilities at Building Level
Corinne Alonso, Université Paul Sabatier

3:00 PM | 2015-ILDC-0331
Dynamic Characterization and Modeling of Organic Light-Emitting Diodes (OLEDs)
Vitor Bender, Federal University of Santa Maria; Marina Camponogara, Federal University of Santa Maria; Norton Barth, Federal University of Santa Maria; Rafael Pinto, Federal University of Santa Maria; Marchesan Tiago Bandeira, Federal University of Santa Maria (UFSM); Jose Alonso, Universidad de Oviedo

3:30 PM | 2015-ILDC-0327
Influence of Driving Current on Photometric Performances of a White Light OLED
Yang Liu, Fudan University; David Buso, Paul Sabatier University; Yuming Chen, Fudan Univ.; David Buso, Paul Sabatier University; Georges Zissis, University of Toulouse

4:30 PM | 2015-ILDC-0332
Optimizing LED Lamps Design for Street Lighting With Staggered Arrangement Allowing Energy Saving Strategies in a Lighting Smart Grid Context
Daniel Garcia-Llera, University of Oviedo; Antonio Calleja, University of Oviedo; Nelo Medina, University of Oviedo; Manuel Rico-Secades, University of Oviedo; Emilio Coraminas, University of Oviedo; Pablo J. Quintana, University of Oviedo

5:00 PM | 2015-ILDC-0322
A Novel Ambiance Changing Energy Saving LED Lighting System with PFM Operated Zeta Converter
Somnath Pal, Indian Institute of Technology Delhi; Bhim Singh, Indian Institute of Technology Delhi; Ashish Shrivastava, Indian Institute of Technology (IITD); Ambrish Chandra, ETS; Kamal Al Haddad, ETS
Tuesday, October 20th 2:00 PM – 6:00 PM

SESSION 28
Energy Systems Committee

ENERGY SYSTEM II

Session Chair: Joe Weber, Emerson Network Power
Session Organizer: Wei-Jen Lee, University of Texas at Arlington
Room: Crystal VII

2:00 PM | 2015-ESC-0461
Distributed Energy Resource Planning For Microgrids in the United States
Chen Yuan, The Ohio State University; Mahesh Illindala, The Ohio State University; Mohammed Haj-ahmed, The Ohio State University; Amrit Khalsa, American Electric Power

2:30 PM | 2015-ESC-0456
Distributed Energy Resources Placement in Distribution Networks Considering Proximity to Voltage Collapse
Franklin Quilumba, National Polytechnic School; Gonzalo Constante-Flores, National Polytechnic School; Jesús Játiva-Ibarra, National Polytechnic School; Wei-Jen Lee, University of Texas at Arlington

3:00 PM | 2015-ESC-0458
Economic Analysis of Battery Energy Storage System
William B. Ray II, Texas Tech University; Anitha Subburaj, Texas Tech University; James A. Schrock, Texas Tech University; Stephen Bayne, Texas Tech University

3:30 PM | 2015-ESC-0464
Energy Storage Systems for High Power Applications
Mustafa Farhadi, Florida International University; Osama Mohammed, Florida International University

4:00 PM | 2015-ESC-0476
Factors that Impact the Accuracy of Clustering Based Load Forecasting
Xin Wang, University of Texas at Arlington; Wei-Jen Lee, University of Texas at Arlington; Heng Huang, University of Texas at Arlington; Robert Szabados, Consolidated Edison Company of New York, Inc; David Yanshi Wang, Consolidated Edison Company of New York; Peter Van Olinda, Consolidated Edison Company of New York, Inc

5:00 PM | 2015-ESC-0484
Feasibility Investigation of a Hybrid On-Grid Wind Photovoltaic Retrofitting System
Hussein Al-Masri, Texas A&M University; Mehrdad Ehsani, Texas A&M University

5:30 PM | 2015-ESC-0455
Feature Extraction Based Hellinger Distance Algorithm for Non-Intrusive Aging Load Identification in Residential Buildings
Hueh-Hsien Chang, Jin Wen University of Science and Technology; Meng-Chien Lee, National Taiwan University of Science and Technology; Nanning Chen, National Taiwan University of Science and Technology; Chao-Lin Chien, National Taiwan University of Science and Technology; Wei-Jen Lee, University of Texas at Arlington

Tuesday, October 20th 2:00 PM – 6:00 PM

SESSION 29
Power Systems Protection Committee

POWER SYSTEMS PROTECTION

Session Chair: David Mazur
Session Organizer: Rob Hoerauf
Room: Colonade

2:00 PM | 2015-PSPC-0442
A Method of 20 kV Cable Line Fault Location Based on Sheath Grounding Current
Faan Guo, Shandong University; Guofang Zhu, School of Electrical Engineering; Xiaofeng Dong, Suzhou Power Supply Company

2:30 PM | 2015-PSPC-0444
A New Protection Scheme for Multi-Bus DC Power Systems Using an Event Classification Approach
Mustafa Farhadi, Florida International University; Osama Mohammed, Florida International University

3:00 PM | 2015-PSPC-0443
A Wide Area Protection Scheme for Smart Distribution Network with DG
Mi Xu, Shandong University; Ying Sun, Shandong Univ.; Ke-Jun Li, Shandong University; Wenwen Xiao, Shandong Univ.; Hao Li, Shandong Univ.; Hongxia Gao, Shandong University

3:30 PM | 2015-PSPC-0446
Comprehensive Protection Strategy for an Islanded Microgrid Using Intelligent Relays
Kexing Lai, The Ohio State University; Mahesh Illindala, The Ohio State University; Mohammed Haj-ahmed, The Ohio State University

4:30 PM | 2015-PSPC-0447
Developing and Testing Phaselet Frames-Based Digital Protection for Distributed Generation Units
Saleh Saleh, University of New Brunswick; Emre Ozkop, Karadeniz Technical University; Abdulah Al-Jankawey, The University of New Brunswick

5:00 PM | 2015-PSPC-0448
Experimental Performance of the Phase-Based Digital Protection Against Arc Flash Faults
Saleh Saleh, University of New Brunswick; Abdulah Al-Jankawey, The University of New Brunswick; Rachid Errouissi, The Petroleum Institute; Aziz Rahman, Memorial University of Newfoundland

5:30 PM | 2015-PSPC-0450
Protection Coordination Analysis Under a Real-time Architecture for Industrial Distribution Systems Based on the Std IEEE 242-2001
David Celeita Rodriguez, Universidad de los Andes; Juan Pico Sanabria, Universidad de los Andes; Gustavo Ramos, Universidad de los Andes
SESSION 30
Industrial Automation and Control Committee

DRIVES, POWER SYSTEMS AND INTELLIGENT SYSTEMS (COMBINED)

Session Chairs: Jingbo Liu and M. Y. El-Sharkh
Session Organizer: Dr. Mahesh Illindala
Room: Crystal II

8:00 AM | 2015-IACC-0414
A Reinforcement Learning Algorithm Based Technique for Thermal Energy Management of A PEM Fuel Cell Power Plant
M. Y. El-Sharkh, University of South Alabama; Suparna Chowdhury, University of South Alabama; M. Y. El-Sharkh, University of South Alabama

8:30 AM | 2015-IACC-0415
Rotational Energy Harvesting To Prolong Flight Duration of Quadcopters
Robert Sawah, University of Ghana; Abdul Ofuli, UTC College of Engineering and Computer Science; Moses Acquah, University of Ghana; Abdul Ofuli, UTC College of Engineering and Computer Science; Godfrey Mills, University of Ghana; Koudjo M. Kounadi, University of Ghana

9:00 AM | 2015-IACC-0425
Modeling and Diagnostic of Incipient Inter-turn Faults for a Three Phase Permanent Magnet Synchronous Motor Using Wavelet Transform
Najla Haje Obeid, université de Lorraine; Thierry Boileau, GREEN; Babak Nahid-Mobarakeh, GREEN

9:30 AM | 2015-IACC-0406
A New Compensation Technique for PMSM Torque Ripple Minimization
Azzeddine HOUARI, Université de Lorraine; François Auger, Université de Nantes; Jean-christophe Olivier, Université de Nantes; Mohamed Machmoum, Université de Nantes

10:00 AM | 2015-IACC-0385
A Distribution Grid Tied Multifunctional SPV System Operating with Control Approach Based on Decoupled Adaptive Neural Network
Chinmay Jain, Indian Institute of Technology, Delhi; Sagar Goel, IIT Delhi; Bhim Singh, Indian Institute of Technology Delhi; Kamal Al Haddad, ÉTS; Ambish Chandra, ÉTS

11:00 AM | 2015-IACC-0416
Generalized Stability Control For Open Loop Operation of Motor Drives
Jingbo Liu, Rockwell Automation; Thomas Nondahl, Rockwell Automation; Peter Schmidt, Rockwell Automation; Semyon Royak, Rockwell Automation; Timothy Rowan, Rockwell Automation

11:30 AM | 2015-IACC-0391
Self-Organizing Recurrent Fuzzy Wavelet Neural Network-Based Mixed H2/H∞ Adaptive Tracking Control for Uncertain Two-Axis Motion Control System
Fayez El-Sousy, Prince Sattam bin Abdulaziz University; Khaled Abuhaseil, Prince Sattam bin Abdulaziz University
Wednesday, October 21st 8:00 AM – 12:00 PM

SESSION 32
Power Systems Engineering Committee
POWER SYSTEMS ENGINEERING IV

Session Chair: Kent Sayler
Session Organizer: Sergio Penetta
Room: Crystal V

8:00 AM | 2015-PSEC-0595
Stability Improvement of a Large-Scale Offshore Wind Farm Using a Superconducting Magnetic Energy-Storage Unit and a Superconducting Fault-Current Limiter
Li Wang, National Cheng Kung University; Si-Yang Lien, National Cheng Kung University; Anton V. Prokhorov, Tomsk Polytechnic University

8:30 AM | 2015-PSEC-0597
The Effect of Water Droplets and Salinity on the Offshore Wind Turbines Windings Insulation: A Short Review
Christina-Panagiota Malliou, Democritus University of Thrace; Athanasios Karlis, Democritus University of Thrace; Michael Danikas, Democritus University of Thrace; Blake Lloyd, Qualitrol Corp

9:00 AM | 2015-PSEC-0598
Wind and Solar Farms Underground Cables Ampacity When Lining Materials are used in Trenches
Eduardo Enrique, Stantec Consulting Ltd.; Andrew Rees, Stantec Consulting Ltd.; Sean Freihaut, Stantec Consulting Ltd

9:30 AM

10:30 AM | 2015-PSEC-0599
Adaptive Harmonic Cancellation Scheme for Voltage and Frequency Control of a Single Phase Two Winding SEIG
Ujjwal Kalla, Indian Institute of Technology New Delhi; Bhim Singh, Indian Institute of Technology Delhi; S. S. Murthy, Indian Institute of Technology, Delhi

11:00 AM | 2015-PSEC-0600
Modified Electronic Load Controller for Constant Frequency Operation with Voltage Regulation of small Hydro Driven Single-Phase SEIG
Ujjwal Kalla, Indian Institute of Technology New Delhi; Bhim Singh, Indian Institute of Technology Delhi; S. S. Murthy, Indian Institute of Technology Delhi

Wednesday, October 21st 8:00 AM – 12:00 PM

SESSION 33
Mining Committee
MINING INDUSTRY APPLICATIONS III

Session Chair: Miguel Angel Reyes
Session Organizer: Miguel Angel Reyes
Room: Crystal VI

8:00 AM | 2015-MIC-0650
Simulation and Measurement of Medium Frequency Signals Coupling From a Line to a Loop Antenna
Nicholas Damiano, National Institute for Occupational Safety and Health; Jingcheng Li, National Institute for Occupational Safety and Health; Chenming Zhou, National Institute for Occupational Safety and Health; Donovan Brocker, The Pennsylvania State University; Yifeng Qin, The Pennsylvania State University; Douglas Werner, The Pennsylvania State University; Pingjuan Werner, The Pennsylvania State University

8:30 AM | 2015-MIC-0660
Space Vector Modeling of a SAG Mill Drive and Evaluation during Mill Shutdowns
M. Anibal Valenzuela, University of Concepcion; Pablo Castro, University of Concepcion

9:00 AM | 2015-MIC-0648
The Effect of Available Short Circuit Capacity and Trail Cable Length on Substation Voltage Amplification in Surface Excavation Industry
Omar Abdel-Baqi, Caterpillar; Michael Onsager; Peter J. Miller

9:30 AM | 2015-MIC-0658
True Unit Power Factor Active Front End for High Capacity Belt Conveyor Systems
Thiago Parreiras, Federal University of Minas Gerais; Thiago Parreiras, GE Power Conversion; Julia Justino, CEFET-MG – Centro Federal de Educação Tecnológica de Minas Gerais; Anderson Rocha, CEFET-MG – Centro Federal de Educação Tecnológica de Minas Gerais; Braz Cardoso, Federal University of Minas Gerais

10:30 AM | 2015-MIC-0649
Improving Power Quality In Mining Industries With a Three-Level Active Front End
Alex-Sander Luiz, Centro Federal Educação Tecnológica de Minas Gerais; Braz Filho, Universidade Federal de Minas Gerais
Wednesday, October 21st 8:00 AM – 12:00 PM

SESSION 34
Energy Systems Committee

ENERGY SYSTEMS III

Session Chair: Franklin L. Quilumba, Escuela Politecnica Nacional
Session Organizer: Joe Weber, Emerson Network Power
Room: Crystal VII

8:00 AM | 2015-ESC-0481
Luigi Martinano, Sapienza University of Rome; Morris Brenna, Maria Carmen Falvo, Sapienza University; Federica Foiadelli, Davide Poli

8:30 AM | 2015-ESC-0462
Fuel Cell Based Hybrid Power Generation Strategies for Microgrid Applications
Prasanna Rajagopal, University of Texas at Dallas; Kaushik Rajashekar, University of Texas at Dallas

9:00 AM | 2015-ESC-0472
Integrated Mechanical And Electrical Non-salient Pole PMSG-Based Wind Turbine Model Development with Predictive Direct Torque Control
Shih-Yu Yang, National Taiwan University; Yuan-Kang Wu, National Chung-Cheng University; Huei-Jeng Lin, National Taiwan University; Wei-Jen Lee, University of Texas at Arlington

9:30 AM | 2015-ESC-0483
Integrating the First HVDC-Based Offshore Wind Power into PJM System – A Real Project Case Study
Jeremy Lin, PJM Interconnection

10:30 AM | 2015-ESC-0478
KNX Protocol Compliant Load Shifting and Storage Control in Residential Buildings
Luigi Martinano, Sapienza University of Rome; Roberto Marrocco, Francesco Liberati, Alessandro Di Giorgio

11:00 AM | 2015-ESC-0468
Optimal Deployment of Distributed Generation Using a Reliability Criterion
Joydeep Mitra, Michigan State University; Mallikarjuna Vallem, Pacific Northwest National Laboratory; Chanan Singh, Texas A&M University

11:30 AM | 2015-ESC-0457
Optimal Energy Management in an Industrial Plant using On-Site Generation and Demand Scheduling
Moein Choobineh, Colorado School of Mines; Salman Mohagheghi, Colorado School of Mines

Wednesday, October 21st 1:30 PM – 5:30 PM

SESSION 35
Industrial Automation and Control Committee

POWER SYSTEM CONTROL II

Session Chairs: Dr. Mahesh Illindala and Dr. Sukumar Kamalasadan
Session Organizer: Dr. Abdul R. Ofoli
Room: Crystal II

1:30 PM | 2015-IACC-0428
Hybrid Energy Function based Real-Time Optimal Wide Area Transient Stability Controller For Power System Stability
Reza Yousefian, University of North Carolina at Charlotte; Amirreza Sahami, University of North Carolina at Charlotte; Sukumar Kamalasadan, University of North Carolina at Charlotte

2:00 PM | 2015-IACC-0429
An Optimal Storage Management Algorithm for PV Capacity Firming based on Weather Patterns
Sherif Abdalrazek, University of North Carolina at Charlotte; Sukumar Kamalasadan, University of North Carolina at Charlotte

2:30 PM | 2015-IACC-0434
Performance Comparison between Dual-Blinder and Phasor-Based Out-of-Step Detection Functions Using Hardware-in-the Loop Simulation
Mustafa Saad, Patterson Power Engineers; Ahmed Eltom, Gary Kobet, Raga Ahmed

3:00 PM | 2015-IACC-0423
Decoupled Load Sharing of Multiple Distributed Generators in DC Microgrids
Nanfang Yang, University of Technology of Belfort-Montbéliard; Damien Paire, University of Technology of Belfort-Montbéliard; Fei Gao, University of Technology of Belfort-Montbéliard; Abdellatif Miraoui, University of Technology of Belfort-Montbéliard; Weiguo Liu, Northwestern Polytechnical University

3:30 PM | 2015-IACC-0426
Yingjie Tan, University of Wollongong; Kashem Muttaqi, University of Wollongong

4:30 PM | 2015-IACC-0431
Inertia Design Methods for Islanded Microgrids Having Static and Rotating Energy Sources
Nimish Soni, IIT Bombay; Suryanarayana Doolla, Indian Institute of Technology Bombay; Mukul C Chandorkar, IIT Bombay

5:00 PM | 2015-IACC-0430
Examining the Interactions between DG Units and Voltage Regulating Devices for Effective Voltage Control in Distribution Systems
Ranamuka Dothyika, University of Wollongong; Ashish Agalgaonkar, University of Wollongong; Kashem Muttaqi, University of Wollongong
Wednesday, October 21st 1:30 PM – 4:00 PM

SESSION 36
Electrostatic Processes Committee

ELECTROSTATIC APPLICATIONS

Session Chair: Masaaki Okubo
Session Organizer: Lucian Dascalescu
Room: Crystal III

1:30 PM | 2015-EPC-0512
Study of VOC Removal Related To Particulate Matter and E. Coli Sterilization in Six-Mat Space by Atmospheric Microplasma
Kazuo Shimizu, Shizuoka University; Yusuke Kurokawa, Shizuoka University; Marius Blajan, Shizuoka University

2:00 PM | 2015-EPC-0488
Motion and Mixing of a Viscous Droplet Located on a Super-hydrophobic Surface Using Resonant Vibration under the Vertical and Horizontal AC Field
Takaki Oh-uchi, Yamagata University; Yoshio Higashiyama, Yamagata University; Toshiyuki Sugimoto, Yamagata University

2:30 PM | 2015-EPC-0517
Application of Nanosecond Pulsed Dielectric Barrier Discharge for Sooty Surface Regeneration
Noureddine Zouzou, University of Poitiers; Arthur Claude Aba’a Ndong, University of Poitiers; Eric Moreau, University of Poitiers

3:00 PM | 2015-EPC-0515
Effects of the presence of Grounded Shield in the Proximity of High-Voltage Corona Electrodes Collection plates
Abdeldjalil Reguig, University of Sidi-bel-Abbes; Abdelber Bendaoud, University of Sidi-bel-Abbes; Ahmed Bouteffaha, University of Sidi-bel-Abbes; Hanane Boudra, University of Sidi-bel-Abbes; Amar Tilmatine, University of Sidi-bel-Abbes; Lucian Dascalescu, University of Poitiers

3:30 PM | 2015-EPC-0509
Water Purification Using a Packed Bed Reactor
Yudai Takeda, Toyohashi University of Technology; Yuki Taino, Toyohashi University of Technology; Hachiro Yasuda, Toyohashi University of Technology; Hirofumi Kurita, Toyohashi University of Technology; Kazunori Takahama, Toyohashi University of Technology; Akira Mizuno, Toyohashi University of Technology

Wednesday, October 21st 1:30 PM – 5:30 PM

SESSION 37
Power Systems Engineering Committee

POWER SYSTEMS ENGINEERING V

Session Chair: Kent Sayler
Session Organizer: Kent Sayler
Room: Crystal V

1:30 PM | 2015-PSEC-0602
Analysis of Voltage Sag Severity Case Study in an Industrial Circuit
Eduardo Cano-Plata, National University of Colombia; Armando Ustariz-Farfan, National University of Colombia; Santiago Arias-Guzman, National University of Colombia; Oscar Ruiz-Guzman, National University of Colombia; Maria Jaramillo-Gonzales, National University of Colombia; Luis Garcia-Arias, National University of Colombia; Pablo Cardona-Orozco, National University of Colombia; Andrés Salazar-Jimenez, Central Hidroeléctrica de Caldas — CHEC

2:00 PM | 2015-PSEC-0603
Phase-to-Phase Communication Scheme for Downhole Monitoring Tool Design in Electrical Submersible Pump Systems
Omid Ghoreishi, ATCO Electric; Xiaodong Liang, Memorial University of Newfoundland; Wilsun Xu, University of Alberta

2:30 PM | 2015-PSEC-0604
Toward Intelligent Fault Classification in Autonomous Microgrids
Shankar Abhinav, University of Texas at Arlington; Giulio Binetti, Polytechnic of Bari; Frank Lewis, University of Texas at Arlington; Ali Davoudi, University of Texas at Arlington

3:00 PM | 2015-PSEC-0605
Operation and Impact of Energy Storage System in an Industrial Microgrid
Abrez Mondal, The Ohio State University; Ajit Renjit, The Ohio State University; Mahesh Illindala, The Ohio State University; Joe Eto, Lawrence Berkeley National Laboratory

3:30 PM | 2015-PSEC-0606
Modeling and Efficiency-based Control of Interleaved LLC Converters in Photovoltaic Based DC Microgrid
Weiran Dai, Texas A&M University

4:30 PM | 2015-PSEC-0607
Hierarchical Frequency Stability Control Strategy of an Autonomous Microgrid
Zhouli Zhao, South China University of Technology; Ping Yang, South China University of Technology; J. M. Guerrero, Aalborg University; Zhirong Xu, South China University of Technology; Tim Green, Imperial College London; Nathaniel Bottrell, Imperial College London

5:00 PM | 2015-PSEC-0608
Battery and Wind System in Weak/Strong Grid Analysis
Anitha Subburaj, Texas Tech University; Stephen Bayne, Texas Tech University
Wednesday, October 21st 1:30 PM – 5:30 PM

SESSION 38
Metals Committee
METALS FINISHING, CONTROL, MEASUREMENTS AND SENSORS

Session Chair: Dr. Juan Lopera
Session Organizer: Tom Dionise
Room: Crystal I

1:30 PM | 2015-METC-0369
Modeling of the Media-Supply of Gas Burners of an Industrial Furnace
Christoph Froehlich, TU Wien; Stephan Strommer, TU Wien; Andreas Steinboeck, TU Wien; Martin Niederer, TU Wien; Andreas Kugi, TU Wien

2:00 PM | 2015-METC-0370
Designs and Feasibility Assessments of an Integrated Linear Electromagnetic Actuator for Cold Roll Mill Applications
Cheng-Tsung Liu, National Sun Yat-Sen University; Yu-Wen Chiu, National Sun Yat-Sen University; Chang-Chou Hwang, Feng Chia University

2:30 PM | 2015-METC-0371
Improved Efficiency Determination for a PLL-Controlled Series Resonant Inverter for Induction Metal Surface Hardening
Houcine Zeroug, University of Sciences and Technology Houari Boumediene; Bilel Meziane, University of Sciences and Technology Houari Boumediene

3:00 PM | 2015-METC-0372
Reducing Costs and Saving Energy in the Tandem Rolling of Hot Metal Strip by the Use of an Advanced Control Method
John Pittner, University of Pittsburgh; Marwan Simaan, University of Central Florida

3:30 PM | 2015-METC-0373
Dynamic Estimation of Electrical Demand in Hot Rolling Mills
Gonzalo Arturo Alonso Ocaño, University of Oviedo; Joseu Rodriguez D., University of Oviedo; Pablo Ardura G., ArcelorMittal; Jose M. Cano, University of Oviedo; Joaquin G. Norniella, University of Oviedo; Rocio Llera T., ArcelorMittal; Diego Cifrian R., ArcelorMittal

4:00 PM | 2015-METC-0374
A Profile Measurement System for Rail Manufacturing Using Multiple Laser Range Finders
Julio Molleda, University of Oviedo; Ruben Usamentiaga, University of Oviedo; Alvaro Millara, University of Oviedo; Garcia Daniel, University of Oviedo; Pedro Manso, University of Oviedo; Carlos Suarez, University of Oviedo; Ignacio Garcia, ArcelorMittal

4:30 PM | 2015-METC-0375
Resonant Inverter Power and Coil Parameters Determination for Metal Surface Hardening
Houcine Zeroug, University of Sciences and Technology Houari Boumediene; Abdelkader Attab, University of Sciences and Technology Houari Boumediene; Bilel Meziane, University of Sciences and Technology Houari Boumediene

Wednesday, October 21st 1:30 PM – 5:30 PM

SESSION 39
Energy Systems Committee
ENERGY SYSTEMS IV

Session Chair: Franklin L. Quilumba, Escuela Politecnica Nacional
Session Organizer: Joe Weber, Emerson Network Power
Room: Crystal VII

1:30 PM | 2015-ESC-0469
Pilot-bus-centered Automatic Voltage Control with High Penetration Level of Wind Generation
Wei Yan, Chongqing University; Wei-Jen Lee, University of Texas at Arlington; Juan Yu, Chongqing University; Xia Zhao, Chongqing University

2:00 PM | 2015-ESC-0480
Probabilistic Wind Generation Forecast Based on Sparse Bayesian Classification and Dempster-Shafer Theory
Ming Yang, Shandong University; You Lin, Shandong University; Xuexhan Han, Shandong University

2:30 PM | 2015-ESC-0475
Stratification-Based Wind Power Forecasting in a High Penetration Wind Power System using a Hybrid Model with Charged System Search Algorithm
Yuan-Kang Wu, National Chung-Cheng University; Po-En Su, National Chung-Cheng University; Jing-Shan Hong, Central Weather Bureau

3:00 PM | 2015-ESC-0477
Very Short-Term Prediction of Wind Farm Power: An Advanced Hybrid Intelligent Approach
Ramya Peri, University of Texas at El Paso; Paras Mandal, University of Texas at El Paso; Ashraf Haque, Teshmont Consultants; Tzu-Liang (Bill) Tseng, University of Texas at El Paso
SESSION 40
Industrial Automation and Control Committee

POWER CONVERTER CONTROL III

Thursday, October 22nd 8:00 AM – 12:00 PM

8:00 AM | 2015-IACC-0413
Naturally Commutated Current-fed Three-Phase Bidirectional Soft-switching DC-DC Converter With New Modulation Technique
Akshay Rathore, National University of Singapore; Satarupa Bal, National University of Singapore; Akshay Rathore, National University of Singapore; Dipti Srinivasan, National University of Singapore

8:30 AM | 2015-IACC-0418
An Optimized Algorithm for SVPWM Based on Three-Phase Stationary Frame
Weiyi Zheng, Zhejiang University; Zhiyong Zeng, Zhejiang University; Huan Yang, Zhejiang University; Chong Zhu, Zhejiang University; Qingwei Yuan, Zhejiang University; Rongxiang Zhao, Zhejiang University

9:00 AM | 2015-IACC-0424
Performance Investigation of High-Energy High-Power Densities Storage Devices by Li-ion Battery and Supercapacitor for Fuel Cell/Photovoltaic Hybrid Power Plant for Autonomous System Applications
Phatiphat Thounthong, King Mongkut’s University of Technology North Bangkok; Suwat Sikkabut, King Mongkut’s University of Technology North Bangkok; Pongsiri Mungporn, King Mongkut’s University of Technology North Bangkok; Chaiman Ekkaravaradome, King Mongkut’s University of Technology North Bangkok; Nicu Bizon, University of Pitesti; Pietro Tricoli, University of Birmingham; Babak Nahid-Mobarakeh, Université de Lorraine; Serge Pierfederici, Université de Lorraine; Bernard Davat, Université de Lorraine

9:30 AM | 2015-IACC-0427
A Universal-Phase Rectifier Architecture for Rural Telecom Exchanges in Developing Countries
Abhishek Maji, IIT Kanpur; Santanu Mishra, Indian Institute of Technology Kanpur; Soumya Nag, Indian Institute of Technology Kanpur; Santanu Mishra, Indian Institute of Technology Kanpur

10:30 AM | 2015-IACC-0432
Coupled Inductor Based High Gain Current-Fed DC-DC Bridge Converters
Soumya Nag, Indian Institute of Technology Kanpur; Santanu Mishra, Indian Institute of Technology Kanpur

11:00 AM | 2015-IACC-0433
A New Efficient Gate Driver Topology
Enzo Illiano; Konrad Wegener, Swiss Federal Institute of Technology

11:30 AM | 2015-IACC-0566
Control of Hybrid AC/DC Microgrid Involving Storage, Renewable Energy and Pulsed Loads
Tan Ma, Florida International University; Mehmet Cintuglu, Osama Mohammed, Florida International University
Global competition and reduced profit margins often push modern manufacturing systems towards automated solutions to increase operational efficiency and reduce idle time of workstations. To achieve this, distributed sensors and actuators are employed to enable remote monitoring and control. The backbone of this system is a communication infrastructure that enables efficient, reliable and secure transmission of data. This tutorial focuses on design of a communication network suitable for factory automation. As the first step, data flow requirements will be studied in terms of throughput, reliability, quality of service (QoS), and security needs for different monitoring, regulation and control applications. When designing a communication network, focus on the right network architecture is essential. This will be the core aspect of the tutorial, as various layers and their functionalities will be reviewed. In doing so, emphasis will be put on topics such as pros and cons of selecting connection-oriented vs. connectionless models, wired vs. wireless solutions, when to use acknowledgements, how to implement multi-access, how to prioritize different data classes for routing purposes, how/where to perform error detection and correction, and so forth. With the latest trend towards decentralized and distributed control of automation systems, the tutorial will also discuss routing and connection control approaches in multi-agent systems, interacting based on machine-to-machine (M2M) communications. The concept of ad hoc wireless networks and SANETs for distributed control and monitoring will also be briefly discussed.

**BIO**

Salman Mohagheghi received the B.Eng. from University of Tehran, Iran, and PhD from Georgia Institute of Technology, Atlanta, GA both in Electrical Engineering. Currently, he is an Assistant Professor at the Electrical Engineering and Computer Science Department at Colorado School of Mines, Golden, CO. Prior to joining CSM, he was a Senior R&D Scientist at ABB Corporate Research Center, Raleigh, NC. His current research focuses on situational awareness, communication networks in power systems, and distribution automation systems. He is an ANSI representative at the IEC TC-57 WG-17 on “Power System IED Communication and Associated Data Models for Distributed Energy Resources and Distribution Automation”, and a senior member of the IEEE.
WEDNESDAY, OCTOBER 21st
1:30 PM – 5:30 PM

High Power Si & SiC Module Technology and Application Considerations

ORGANIZER: John Donlon
Powerex, Inc.

ROOM: CRYSTAL I

High Power Semiconductor modules are the workhorse power switch for industrial applications. This tutorial will discuss the issues a designer must deal with in using these devices including interpretation of device ratings, gate drive requirements, and providing device and system protection. The intent of this tutorial is to aid the designer in choosing and applying a power module to a new product. Questions and concerns a designer might have will be addressed by the various techniques and circuit examples that will be presented. Chip technology and packaging options will be discussed with special attention given to the tradeoffs between silicon and silicon carbide. The practical application of SiC power devices today and in the future will be discussed. The attendee should leave the course with a better understanding of the power module, specifically as a device and how it functions in an application. The goal will be to impart an understanding of desirable features, characteristics, and limitations. This will include the application in power circuits, protection from internal and external disturbances, and an understanding of thermal design, handling, and reliability considerations. The tutorial is intended to be of interest to those who use, apply, procure, or specify power electronic products based on the IGBT as the power switch.

BIO

John F. Donlon (SM’93) received the B.S. degree with high honors in Electrical Engineering from the Lowell Technological Institute and the M.S. degree in Electrical Engineering from Syracuse University. He is Senior Application Engineer at Powerex, Inc. in Youngwood, PA and has been involved in the rating, evaluation, and application of power semiconductors for over 40 years. John has been active in the publication of over seventy-five technical papers, articles, and application notes describing the characteristics and proper application of power semiconductors.

Eric Motto (SM’05) is principal application engineer with Powerex. He holds a Bachelor of Science in Electrical Engineering from Pennsylvania State University and a Bachelor of Arts in Mathematics from Saint Vincent College. From 1987 to 1990 Eric worked as a design engineer at Lutron Electronics in Coopersburg Pennsylvania developing circuits for the control and stabilization of electronic dimming ballasts. Since 1990 Eric has been with Powerex Inc. in Youngwood Pennsylvania providing technical support for users of Mitsubishi power semiconductor devices in North America. Eric has written and presented more than forty technical papers at industry conferences and published numerous application notes and magazine articles related to the design and application of IGBT and Intelligent Power Modules.
THURSDAY, OCTOBER 22nd

8:00 AM – 12:00 PM

Line-Ground and Unsymmetrical Fault Currents: Considerations, Calculations and Symmetrical Components Method

ORGANIZER: Rasheek Rifaat  
Jacobs, Canada

ROOM: CRYSTAL II

The majority of distribution system faults start as line-ground (L-G) faults. Accordingly, attention has been given to grounding or isolation of neutral points of sources and transformers and L-G fault protection. Understanding L-G faults is indispensable for achieving the correct balance between different protection aspects such as coordination, selectivity, speed and economics. Continuity of power supply is critical for many industrial systems, meanwhile, quick fault identification and quick protection tripping reduces the risk of fault advancement into multiple phase faults with damaging currents, arc flash energies and associated hazards. Several computer programs provide great tools for short circuit calculations and relay coordination. However, it is important for electrical engineers and system designers to augment the use of computer programs with comprehensive understanding of their systems. One of the brilliant calculation methods, introduced in 1917 and still being used, is the symmetrical components method. In addition to the introduction of symmetrical components, this tutorial includes discussion on system neutral grounding, medium and low voltage cable and system capacitances, high and low resistance grounding and protection for L-G faults. Relevant IEEE Standards for Recommended Practices in Industrial and Commercial Power Systems (Series 3000) will be identified and discussed.

BIO

Rasheek Rifaat is an IEEE Fellow– He received a B.Sc. from Cairo University in 1972 and a M.Eng. from McGill University in Montreal in 1979 in Electrical Engineering. In 1975, he worked for Union Carbide Canada Ltd. in Quebec. In 1981, he joined Monenco Consultants Limited in Calgary, Alberta, and Saskmont Engineering Limited in Regina, Saskatchewan. He has been involved in thermal power-generating plant projects with special interest in generator protection systems and power-plant systems. Since 1991, he has been working for Delta Hudson Engineering Ltd. (Now Jacobs Engineering) in Calgary. Mr. Rifaat is a registered professional engineer in three Canadian provinces. Mr. Rifaat has published more than 25 papers on cogeneration plant protection, operation and economics and he is the current Chair of the protection & Coordination Work Group for the revision of the Buff Book into Standard 3400 Series.

THURSDAY, OCTOBER 22nd

Electrical Safety Management

ORGANIZER: H. Landis (Lanny) Floyd

ROOM: CRYSTAL III

These two tutorials will use ANSI Z10-2012, Occupational Safety & Health Managing Systems (harmonized with CSA Z1000) as the framework for benchmarking existing programs and for designing and implementing a state of the art electrical safety management system. It will show how the requirements of NFPA 70E, Standard for Workplace Electrical Safety (harmonized with CSA Z462) and other recognized industry standards can be aligned to achieve a comprehensive program based on proven safety management principles. The attendee will be provided the knowledge and tools to develop a business case to help enable management support, assess existing programs, identify improvement opportunities, and develop implementation plans. This tutorial was first introduced at ESW 2009, and is the basis for the Introduction to Electrical Safety Management professional studies online eLearning course offered by the University of Alabama at Birmingham. Target audience: individuals concerned with the design and/or improvement of their occupational electrical safety program, its sustainability, and its integration into an overall occupational safety & health management system. This includes safety professionals, managers, and electrical safety leaders.
8:00 AM – 12:00 PM

Part 1: Introduction and Objectives

Part 1 will show how the requirements of NFPA 70E, Standard for Workplace Electrical Safety (harmonized with CSA Z462) and other recognized industry standards can be aligned to achieve a comprehensive program based on proven safety management principles. The attendee will be provided the knowledge and tools to develop a business case to help enable management support, assess existing programs, identify improvement opportunities, and develop implementation plans.

1:00 PM – 5:00 PM

Part 2: Planning and Implementation

Part 2 includes an interactive workshop to help attendees create a plan for engaging management support for designing an effective electrical safety program and integrating it into an overall Safety, Health, & Environmental management system. The knowledge will help attendees to assess and design real, sustainable improvements in how electrical safety is managed in their organizations.

BIOS

In his 45 year career with DuPont, Lanny Floyd specialized in electric power system reliability, electrical safety, and risk mitigation in plant construction, operation, and maintenance. From 1992 to 2014, he led the DuPont Global Electrical Safety Team, with responsibility for improving management systems, competency renewal, work practices, and the application of technologies critical to electrical safety performance in all DuPont operations. In this role, he helped achieve breakthrough performance in electrical safety. Prior to 1993, DuPont was experiencing a fatality from electrical contact on average every 33 months. Since 1993 and through 2014, there were zero fatalities from electrical contact in DuPont facilities worldwide. Active in IEEE for more than 30 years, he is past president of IAS and past chair of IAS Petroleum and Chemical Industry Committee, IAS Power Systems Engineering Committee and IAS Electrical Safety Committee. He has authored or co-authored more than 70 published papers and articles on occupational electrical safety, receiving fourteen prize paper awards from IEEE. He has given more than 150 presentations on electrical safety at conferences, seminars and webcasts.

Rene’ Graves is a senior EHS specialist with Texas Instruments. For the past 27 years, has had responsibilities focused on developing, implementing and monitoring TI company environmental, safety and health (ESH) programs and policies, developing employee training in content areas such as electrical safety, emergency response, life safety, industrial hygiene, chemical safety and fire hazards and providing support to TI’s supplier safety team, semiconductor equipment acquisition team, Dallas safety team and ESH services’ standards development team. Currently, she is a senior EHS specialist, responsible for providing training in electrical safety, equipment inspection and accident investigation accompanied with onsite support in worldwide. Rene’ is an IEEE Senior Member, a Professional Member of American Society of Safety Engineers, a Certified Safety Professional and a Certified Senior Specialist Instructor for Industrial Rescue at Texas A&M Engineering Extension Service in College Station, Texas. Rene’ has a Bachelor of Science degree in Occupational Safety and Health from Murray State University in Murray, Kentucky.

Mike Doherty is the Director of Learning and Continual Improvement with Shermco Industries Canada. He is retired from Ontario Power Generation with more than 30 years of experience in electrical maintenance in nuclear power facilities. He is expert in areas of electrical safety and health & safety management, consulting, training, auditing and safety speaking engagements, and electrical incident investigations. He is the Technical Committee Chair CSA Standard Z462 Workplace Electrical Safety and Chair of the Construction Safety Subcommittee of the IAS Electrical Safety Committee. He is a member of the NFPA 70E technical committee and liaison between CSA and NFPA for electrical safety. Mike is an IEEE Senior Member. He has received awards and recognition for his leadership and contributions in electrical safety, including:

- Chief Nuclear Officer Award at Ontario Power Generation for Electrical Safety initiatives at a nuclear power generation facility in 2001.
- Chief Nuclear Officer Award at Ontario Power Generation for Electrical Safety initiatives at a nuclear power generation facility in 2003.
- Recognized by the IEEE in 2005 at the IEEE IAS Electrical Safety Workshop for Outstanding Leadership of the IEEE Electrical Safety Virtual Community and for the Advancement of the Electrical Safety Culture.
- 2013 recipient of the IEEE IAS Petroleum and Chemical Industry Committee (PCIC) Electrical Safety Excellence Award.
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The Executive Board consists of all Society Officers, Operating Department Chairs, Staff Department Chairs, Standing Committee Chairs, Members-at-large and the Annual Meeting General Chair. The Executive Board is empowered to amend bylaws, nominate officers and members-at-large, and approve appointments.

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Call for Papers

2016 IEEE Industry Applications Annual Meeting
Portland, OR, USA | October 2-6, 2016
www.ieee.org/ias2016

The 2016 IEEE Industry Applications Society Annual Meeting will address the technical interests related to industrial applications of electrical energy. Papers are solicited on this subject, especially studies pertaining to the scope of the participating Technical Committees of the IEEE Industry Applications Society, as listed below. For papers, draft manuscripts (NOT abstracts or digests alone) should be submitted by e-mail to the individuals identified below. Proposals for Tutorials (which may range from 4 hours to 8 hours) should include a detailed outline as well as a list of presenters and their credentials.

**General Topics** – papers relating to topics of general technical interest in the field of industrial applications and electrical energy not related to a specific technical committee should be sent to Dr. Tomy Sebastian.

t.sebastian@ieee.org

The **Metal Industry Committee** is soliciting papers relating to making, shaping, or treating of metals. Topics of interest include Electrical Distribution, Harmonics, Power Quality, Finishing, Control, Measurements, Sensors and Gauging. Drafts of proposed papers should be sent to Mr. Tom Dionise.

thomasjdionise@eaton.com

The **Power System Engineering Committee** is soliciting papers relating to electrical safety and to design, analysis, maintenance or monitoring of electrical generation or distribution systems in industrial, commercial or institutional facilities. Drafts of proposed papers should be sent to Mr. Kent Sayler.

kent.sayler@ieee.org

The **Industrial Lighting and Display Committee** is soliciting papers relating to light sources and drivers, and display power supplies and more general in lighting system and display technology. Drafts of proposed papers should be sent to Technical Committee Program Chair Prof. J. Marcos Alonso.

marcos@uniovi.es

The **Industrial Automation and Control Committee** is seeking papers that address the applications of electrical and electronic control devices, sensors, systems, and methods to the conversion, regulation and utilization of electricity for the control of industrial processes and manufacturing. Drafts of proposed papers should be submitted online at http://www.openconf.org/ias2016iacc. Any issues with the online system should be sent to Dr. Babak Nahid.

babak.nahidmobarakhe@univ-lorraine.fr

The **Electrostatic Processes Committee** is seeking papers on topics related to fundamentals and industrial applications of electrostatics including but not limited to electrohydrodynamics, electrostatic measurements, computational electrostatics, electrostatic precipitation and separation, coronas and gasdischarges, and ESD/EOS. Draft of the proposed manuscripts should be sent to the Technical Committee Program Chair Dr. Rajesh Sharma.

rsharma@astate.edu

The **Power System Protection Committee** is soliciting papers relating to the protection of power generation and distribution systems in industrial, commercial or institutional facilities, including both fault protection and surge protection. Drafts of proposed papers should be sent to Mr. Rob Hoerauf.

robhoerauf@earthlink.net.
CALL FOR PAPERS

The Energy Systems Committee is soliciting papers related to energy sources, energy management, system control and related issues in industrial, commercial or institutional facilities. Drafts of proposed papers should be sent to Mr. Joe Weber.

The Codes and Standards Committee is soliciting papers related to electrical codes and standards governing the use of the electrical infrastructure in industrial or commercial facilities. Drafts of proposed papers should be sent to: Mr. Steven Townsend.

The Mining Industry Committee is seeking papers related to electrical applications and operations in mines. Drafts of proposed papers should be sent to Mr. Miguel Reyes.

The TUTORIAL program is seeking proposals for presentations on topics in the general technical area of industrial applications of electrical energy, please send outlines and presenter details to: Dr. Joe Sottile by 1 May 2016.

Authors’ Deadlines:
- 1 April 2016: Submission of full drafts of proposed papers to the respective technical committee identified above
- 1 June 2016: Notification of acceptance or rejection by the respective technical committees
- 1 July 2016: Authors to receive instructions for submission of final conference manuscripts
- 1 August 2016: Deadline for submission of FINAL conference manuscripts to ScholarOne Manuscripts

General Requirements:
All authors must submit a DRAFT of the proposed paper for evaluation by the sponsoring Technical Committee. Abstracts or digests alone will not be considered. The draft should identify all authors of the proposed paper, and provide an e-mail address for the corresponding author. All correspondence will be conducted via e-mail. Authors are responsible for assuring that e-mail sent to the corresponding author will NOT be blocked by a spam filter.

At least one author must register to attend the conference and pay the full conference registration fee prior to submitting each final manuscript. Papers that are not actually presented at the conference will not be eligible for publication by IAS.

Final manuscripts for the Conference Record will be submitted electronically via the IAS ScholarOne Manuscripts site. The submitting author must execute an IEEE Copyright Transfer at the time of manuscript submission. All submissions will be screened for similarity to previously published material. Authors of papers sponsored for presentation by the Power System Engineering Power System Protection, Energy Systems, Codes and Standards, and Metals Industry and Mining Industry Committees will be reviewed for possible publication in IEEE Transactions on Industry Application or IEEE Industry Applications Magazine, and authors will receive feedback from this review following the 2016 IAS Annual Meeting. Authors of papers sponsored for presentation by the Industrial Automation and Control, Electrostatic Processes, and Industrial Lighting and Display Committees may request review for publication following presentation at the 2016 IAS Annual Meeting.

Students are encouraged to participate in the Annual Meeting, and are welcome to submit papers. Zucker Educational Grants are available to provide financial support for selected students attending the Annual Meeting; for further information, contact the IAS Chapters and Membership Department, peter.magyar@ieee.org

Please note that not all IAS Technical Committees hold sessions at the IAS Annual Meeting every year. If a committee is not listed in this call for papers, you should contact the appropriate IAS Technical Committee or Department Chair for more information.
SAVE THE DATE

PORTLAND, OREGON
Portland Marriott Downtown Waterfront

OCTOBER 2-6, 2016
IEEE INDUSTRY APPLICATIONS SOCIETY ANNUAL MEETING