2016 IEEE INDUSTRY APPLICATIONS SOCIETY

51ST ANNUAL MEETING

PORTLAND, OREGON
Portland Marriott Downtown Waterfront

OCTOBER 2-6, 2016
Welcome to the 51st IEEE Industry Applications Society Annual Meeting

Over the last half century, IAS Annual meeting has established a long tradition of providing an international forum for practicing engineers, researchers, students 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 180 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. We will also have a plenary presentation by Dr. Kamiar J. Karimi, Senior Technical Fellow, Boeing. Is presentation will be on “787 Electric Power Systems and Future Trends in More Electric Airplanes”

Again this year 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.

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 Bonneville Dam and generating station in Portland. On Sunday evening, there 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 when 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 & Thursday to conduct the administrative business of the Society.

The organizing committee of the 51st IAS Annual meeting has worked hard to put this conference together and hope your stay is both pleasant and productive. Again, welcome to beautiful Portland, Oregon!

Tomy Sebastian
General Chair
## Contents

- Conference Chair Welcome Letter .................................. inside cover
- General Information ............................................................. 2
- Meeting Sponsors & Special Events ....................................... 3
- Hotel Floor Plans ................................................................. 4
- Schedule at a Glance ............................................................. 5
- Mobile Application ............................................................... 13
- Committee Meetings ............................................................ 14
- Keynote .................................................................................. 15
- Technical Sessions ............................................................... 16
  - MONDAY, OCTOBER 3rd ....................................................... 16
  - TUESDAY, OCTOBER 4th .................................................... 21
  - WEDNESDAY, OCTOBER 5th ............................................. 26
- Tutorials ................................................................................ 31
- IEEE-IAS Leadership ............................................................ 34
- 2017 Call for Papers ............................................................. 47
General Meeting Information

All conference events will be held at the Portland Marriott Downtown Waterfront:
1401 SW Naito Pkwy
Portland, OR 97201
Phone: 503-226-7600

HOUSING
The host hotels for 2016 IAS housing are as follows:
Portland Marriott Downtown Waterfront
1401 SW Naito Pkwy
Portland, OR 97201
Phone: 503-226-7600
Residence Inn by Marriott Portland Downtown RiverPlace
2115 SW River Pkwy
Portland, OR 97201
Phone: 503-552-9500

INTERNET ACCESS
More information will be available at registration

REGISTRATION INFORMATION
Registration will be located in Lower Level 1 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 Salon EF on Sunday evening from 6:30 PM – 9:30 PM. The posters will be then available for viewing starting Monday morning in the Lower Lobby Level Foyer Space until Wednesday afternoon.

SESSION CHAIRS & PRESENTING AUTHORS
The Authors Breakfast on Monday morning will be in Mt. Hood from 7:00 AM – 8:00 AM, immediately before the Welcome Breakfast. The Authors Breakfasts on Tuesday, Wednesday and Thursday will also be held from 7:00 AM – 8:00 AM in Mt. Hood. These breakfasts are open only for 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 2016 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 to open the information. Use the index pages to access 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.

NAVIGATING PORTLAND
The hotel is located in downtown Portland which is convenient for dining, shopping and entertaining. For full information about all that Portland has to offer, please visit Travel Portland’s website at www.travelportland.com. The hotel’s concierge staff will be happy to assist with recommendations and can assist in making dinner reservations.

COMPANION’S ROOM
The Companion’s Room is located in the Hospitality Suite room and is open only to guests of conference attendees. It will be available from 8:00 AM – 5:00 PM Monday through Wednesday.
Sponsors

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

EATON

Powering Business Worldwide

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Powering Success

Special Events

SUNDAY, OCTOBER 2ND

CMD Chapter’s Workshop
(by invitation only)
8:00 AM – 5:00 PM
SALON I

Guide to the IAS Annual Meeting for First-Time Attendees
5:30 PM – 6:30 PM
SALON A

Welcome Reception & Student Poster Session
6:30 PM – 9:30 PM
SALONS E-F

MONDAY, OCTOBER 3RD

Welcome Breakfast
7:30 AM – 8:15 AM
SALON E

Plenary Session:
Title? TBD
8:15 AM – 8:50 AM
SALON E

Myron Zucker Student Luncheon –
Open to all students
12:30 PM – 2:00 PM
MT. HOOD

TUESDAY, OCTOBER 4TH

Tour of Bonneville Lock and Dam
*Separate Fee (pre-registration required)
9:00 AM – 4:30 PM
OFF-SITE

WEDNESDAY, OCTOBER 5TH

IAS Executive Board Meeting
8:00 AM – 6:00 PM
COLUMBIA

Council Meeting/Workshop Luncheon
12:00 PM – 1:30 PM
MT. HOOD

President’s Reception
(by invitation only)
5:30 PM – 7:00 PM
HAWTHORNE, BELMONT & LAURELHURST

IEEE IAS Awards & President’s Banquet
7:00 PM – 9:30 PM
SALON EF

THURSDAY, OCTOBER 6TH

IAS Executive Board Meeting
8:00 AM – 6:00 PM
COLUMBIA
# Schedule at a Glance

**SUNDAY, OCTOBER 2nd**

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## Schedule at a Glance
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# Schedule at a Glance

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**SCHEDULE AT A GLANCE**
## Schedule at a Glance
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# Schedule at a Glance

**TUESDAY, OCTOBER 4th**

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<td>PSEC Session #1</td>
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- **Mining Committee Meeting**
- **MSDAD Department Meeting**
## Schedule at a Glance

**WEDNESDAY, OCTOBER 5th**

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# Schedule at a Glance

**WEDNESDAY, OCTOBER 5th**

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<tr>
<th>Salon C</th>
<th>Salon D</th>
<th>Salon G</th>
<th>Eastside Rooms (Hawthorne, Belmont &amp; Laurelhurst)</th>
<th>Salons E-F</th>
<th>Columbia</th>
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<tbody>
<tr>
<td>TECHNICAL SESSION #25 PSEC Session #6</td>
<td>TECHNICAL SESSION #26 ESC Session #3</td>
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<td>Executive Board Meeting</td>
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<td>TECHNICAL SESSION #30 PSEC #5</td>
<td>TECHNICAL SESSION #31 ESC Session #4</td>
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# Schedule at a Glance

**THURSDAY, OCTOBER 6th**

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</table>

### Executive Board Meeting

- 7:30AM - 8:00AM

### Author’s Breakfast

- 7:00AM - 7:30AM

### Technical Session #32

- IACC Session #7 - if not moved to Wednesday
- 8:30AM - 12:00PM

### Technical Session #44

- 12:30PM - 5:00PM

### Tutorials

- T3 (8:00AM - 12:00PM)
- T4 (12:30PM - 5:30PM)
- T5 (5:30PM - 8:00PM)
Mobile Application (iOS and Android)

The IAS Agenda Mobile Application was developed for the IEEE Industry Applications Society (IEEE IAS). Initial purpose: the 2016 IAS Agenda Meeting. Get "IAS Agenda" on Apple "App Store" & Google "Play Store". Sign in using only your conference registration e-mail.

The user, signed in under his conference registered e-mail can:

- **Search** or simply navigate through an extended side-menu to access all necessary Conference Information through their mobile device.
- **Reach the Conference administration**, effortlessly.
- Access the full Conference program (Technical, Tutorials & Workshops, Meetings, Special Events and Schedule at a Glance).
- View other registered participants shared details.
- Access hotel floor plans.
- Create, edit and delete personal notes. **Disclaimer:** Notes are stored locally, in user’s device, for secured privacy.
- User can access an exclusive mobile City Guide with information on Downtown, Restaurants, Sights and Shopping places around the Conference Venue, even with Google Street View enabled.
- Navigate to key Ground Transportation locations intended to reach the Conference Venue.
- Receive real-time Notifications on their device.
- Visit all relative Social Media pages.
- Help us improve using feedback feature!
<table>
<thead>
<tr>
<th>Department/Committee</th>
<th>Start Time</th>
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<td>CMD Department Meeting</td>
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<tr>
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<td>2:00 PM</td>
<td>4:00 PM</td>
<td>Columbia</td>
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<td>PSP Communications WG 1</td>
<td>2:00 PM</td>
<td>3:30 PM</td>
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<tr>
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<td>TBCC Protection and Coordination</td>
<td>4:00 PM</td>
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<td>TBCC MOS Working Group</td>
<td>4:00 PM</td>
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<td>Salon D</td>
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<td>TBCC Emergency Standby</td>
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<td>5:00 PM</td>
<td>Salon A</td>
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<tr>
<td>TBCC Power System Analysis</td>
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<td>6:00 PM</td>
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<td>Guide for 1st time attendees</td>
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<td>6:30 PM</td>
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<td><strong>MONDAY, OCTOBER 3, 2016</strong></td>
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<td>Tech Standards Coordinating</td>
<td>9:00 AM</td>
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<td>PSE Program Planning Subcommittee Meeting</td>
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<td>9:00 AM</td>
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<td>I&amp;CPS Meetings Committee</td>
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<td>PSP Grounding Subcommittee</td>
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<td>Belmont &amp; Laurelhurst</td>
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<td>Pubs/Magazine</td>
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<td>MSDAD Department Meeting</td>
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Keynote
787 Electric Power Systems and Future Trends in More Electric Airplanes

DR. KAMIAR J. KARIMI
Senior Technical Fellow, Boeing

This keynote focuses on More Electric Aircraft (MEA). First, aircraft energy systems are reviewed. All power sources in traditional aircraft are introduced and corresponding power consumers are presented. Then, the MEA concept is detailed and its advantages are discussed. A road to get more electrified is emphasized for Boeing 787 Dreamliner. Advanced technology contributions to fuel efficiency and the role of power electronics in MEA are exposed. Finally, a thorough discussion on future trends in MEA will be held. It goes from load electrification to propulsion system through microgrids and interdisciplinary technologies.

Kamiar Karimi received his B.S., Master of Engineering, and Ph.D. degrees in Electrical Engineering from Cornell University in 1981, 1982, and 1986 respectively. From 1986-89 he worked for Landis and Gyr Systems in San Jose, CA where he was in charge of performing research in the area of Energy Management Systems.

Since 1989 he has been with The Boeing Company. He has led system analysis and modeling for the Space Station Power System, and has been involved in design, analysis, and validation of various airplane electric power systems including 747/767/777, and 787. He is one of the architects of the 787 More-Electric systems and is responsible for developing many of the new technologies for 787 electrical power system. Currently he is leading multiple research projects related to aircraft architecture optimization, power conversion technology, and simulation of large complex dynamical systems. He is a Senior Technical Fellow at Boeing.
## Technical Program

### Monday, October 3, 2016  9:00 AM – 10:30 AM

**SESSION #1-a**  
**Student Technical Session**  
**CMD DEPARTMENT**  
**Session Chairs:** J. Marcos Alonso, Lesley Ann Arakkal  
**Session Organizers:** Peter Magyar, Aristotelis Farmakis  
**Room:** Salon A  

<table>
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<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
<th>Institution</th>
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<tr>
<td>9:00 AM</td>
<td>Control Management of a Propulsion System with Supercapacitors for Electric and Hybrid Vehicles</td>
<td>Waled Mohamed, Sapienza University of Rome, Italy</td>
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<tr>
<td>9:30 AM</td>
<td>Heterogeneous Platform for IEDs Connection on a Fault Location Engine of Distribution Systems with DG Using DSSim-PC</td>
<td>David Celeita, Universidad de los Andes, Colombia</td>
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### Monday, October 3, 2016  11:30 AM – 12:30 PM

**SESSION #1-b**  
**Student Technical Session**  
**CMD DEPARTMENT**  
**Session Chairs:** David Durocher, Megha Tak  
**Session Organizers:** Peter Magyar, Aristotelis Farmakis  
**Room:** Salon A  

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<th>Institution</th>
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<tr>
<td>11:00 AM</td>
<td>Energy Storage System for Wind Turbines</td>
<td>Ryan Meng, Mathieu Malone, Ryan McSheffery, Sarah Buck, University of New Brunswick, Canada</td>
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<tr>
<td>11:30 AM</td>
<td>Novel MPPT Based on Board Solar Charging System for an Electric Scooter</td>
<td>Jyothis Joseph, Mehanath KV, Sachin Ranjith, Shejin George, Akash Manoj, Anirudh Jithendran, Vimal Jyothis Engineering College, India</td>
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<tr>
<td>12:00 PM</td>
<td>A Non-Intrusive Air-Gap Torque Method for Efficiency Estimation of Induction Machines</td>
<td>Anil Kumar Mathur, Sandeep Kumar, Sudheer Kumar, Indian Institute of Technology Mandi, India</td>
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### Monday, October 3, 2016  9:00 AM – 10:30 PM

**SESSION #2-a**  
**Student Technical Session**  
**CMD DEPARTMENT**  
**Session Chairs:** Chiara Boccaletti, Aristotelis Farmakis  
**Session Organizer:** Peter Magyar, Aristotelis Farmakis  
**Room:** Salon B  

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<td>9:00 AM</td>
<td>PMU Based Fault Location Method for Distribution Systems</td>
<td>Aneesh Rajeev, Amrita School of Engineering, Amritapuri Campus, Kollam, Kerala, India</td>
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<tr>
<td>9:30 AM</td>
<td>Theoretical Study and Experimental Analysis of a Thermal-Photovoltaic Panel</td>
<td>Cristina Moscatiello, Sapienza University of Rome, Italy</td>
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<tr>
<td>10:00 AM</td>
<td>Theoretical Study and Experimental Analysis of the Maximum Power Point Tracking for Wind Turbine</td>
<td>Michelle G Gomez De Franco, Sapienza University of Rome, Italy</td>
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Monday, October 3, 2016 11:00 AM – 12:30 PM

Session #2-b
Student Technical Session

CMD DEPARTMENT

Session Chairs: Olive Ray, Usman Munawar
Session Organizers: Peter Magyar, Aristotelis Farmakis
Room: Salon B

11:00 AM
Implementation of Structured Light Algorithm for Detecting Fissures and Cracks Through Image Processing in the ODROID Platform
Lizeth Stephany Roldan Jimenez, Pontificia Universidad Javeriana, Colombia

11:30 AM
Co-simulation Strategy of PV Hosting Capacity Applying a Stochastic Analysis
Yessica Andrea Africano Rodriguez, Universidad de los Andes, Colombia

12:00 PM
Bionic Arm Controlled EMG Signal
Priyadarshan CV, Abhilash A, Akash T John, Nikhil K Jeorge, Pranav Thomas, Vimal Jyothis Engineering College, India

Monday, October 3, 2016 9:00 AM – 12:30 PM

Session #3
IACC Session #1

INDUSTRIAL AUTOMATION AND CONTROL COMMITTEE

Session Chair: Suryanarayana Doolla
Session Organizer: Suryanarayana Doolla
Room: Salon C

9:00 AM | 2016-IACC-0802
Nonlinear Adaptive Backstepping Controller Design for Controlling Bidirectional Power Flow of BESSs in DC Microgrids
Roy, Tushar Kanti; Mahmud, Md Apel; Oo, Amanullah M. T.; Haque, Enamul; Mendis, Nishad; Muttaqi, Kashem

9:30 AM | 2016-IACC-0809
Analysis of Frequency Transients in Isolated Microgrids
Soni, Nimish; Doolla, Suryanarayana; Chandorkar, Mukul C

10:00 AM | 2016-IACC-0807
Designing an Intelligent Low Power Residential PV-Based Microgrid
Babakmehr, Mohammad; Harirchi, Farnaz; Alsaleem, Abdulhakeem; Bubshait, Abdullah; Simoes, Marcelo

11:00 AM | 2016-IACC-0797
Design and Implementation of CCNY DC Microgrid Testbed
Salal, Mahmoud; Esf, Yusuf; Mhandi, Yassine; Brandauer, Werner; Mohamed, Ahmed

11:30 AM | 2016-IACC-0798
Decentralized Voltage Stability Monitoring and Control in the Smart Grid using Distributed Computing Architecture
Lee, Hyeongjung; Niddodi, Shwetha; Srivastava, Anurag; Bakken, David

12:00 PM | 2016-IACC-0803
Decentralized State Estimation and Remedial Control Action for Minimum Wind Curtailment Using Distributed Computing Platform
Srivastava, Anurag; Liu, Ren; Askerman, Alexander; Bakken, David; Panciatici, Patrick

Monday, October 3, 2016 9:00 AM – 11:30 PM

Session #4
ILDC – Special Session on Networking

INDUSTRIAL LIGHTING AND DISPLAYS

Session Chair: Marcos Alonso, University of Oviedo, Spain
Session Organizer: Georges Zissis, Toulouse 3 University, France
Room: Salon G

9:00 AM
Light and Matter Research Group, LAPLACE Laboratory at Toulouse 3 University, France
Speaker: Georges Zissis

9:30 AM
Research on Solid-State Lighting Driver Systems at NCKU, Taiwan
Speaker: Ray-Lee Lin

10:00 AM
GEDRE – Intelligence for Lighting, Federal University of Santa Maria, Brazil
Speaker: Marco A. Dalla Costa

11:00 AM
Efficient Energy Conversion and Lighting Group, University of Oviedo, Spain
Speaker: Marcos Alonso
Monday, October 3, 2016 9:00 AM – 12:30 PM

Session #5
Metals Industry Processes, Power Quality, Power Distribution

METALS

Session Chair: Juan M. Lopera, University of Oviedo
Session Organizer: Braz Cardoso Filho, Universidade Federal de Minas Gerais
Room: Salon H

9:00 AM | 2016-METC-0636
Validation and Reception of Electric Arc Furnace Transformers
Cano-Plata, Eduardo; Soto, Oscar; Ustariz-Farfan, A.J.

9:30 AM | 2016-METC-0637
Experimental Results of a Thyristor Switched Series Reactor for Electric Arc Furnaces
Pires, Igor; Machado, Alysson; Murta, Marcelo; Cardoso, Braz

10:00 AM | 2016-METC-0638
Harmonics and Interharmonics Analysis of Electrical Arc Furnaces Based on Spectral Model Optimization with High Resolution Windowing
Vatankulu, Yunus; Senturk, Zekeriya; Salor, Ozgul

11:00 AM | 2016-METC-0639
Illumination Based Flickermeter Designed for Flicker Analysis of Electric Arc Furnace Plants
Turkuzan, Mehmet; Salor, Ozgul

11:30 AM | 2016-METC-0640
Sizing Reactive Compensation for a Steel Plant to Support a New Descaler with Large Motors
Dionise, Thomas; Morello, Sam

12:00 PM | 2016-METC-0641
Overcurrent Protection Response of a Hot Rolling Mill Filtering System: Analysis of the Process Conditions
Alonso Orcajo, Gonzalo Arturo; Ardura G., Pablo; Rodríguez D., Josué; Cano, Jose M.; G. Norniella, Joaquín; Llera T., Rocio; Cifrián R., Diego

Monday, October 3, 2016 2:00 PM – 3:30 PM

Session #6-a
Student Technical Session

CMD DEPARTMENT

Session Chairs: Tomy Sebastian and Galini Kondyli
Session Organizers: Peter Magyar, Aristotelis Farmakis
Room: Salon A

2:00 PM
Research on Novel Primary Wound-Field Flux-Switching Linear Motors
Jin Yi, Nanjing University of Aeronautics and Astronautics, China

02:30 PM
Anti-lock and Regenerative Braking Control of SRM for Electric Vehicle
Grace Firsta Lukman, Kyungsung University, Republic of Korea

03:00 PM
Sensorless Speed Comparison for Vector Controlled Induction Motor Current Regulation Strategies
Peter William Knight, Royal Melbourne Institute of Technology, Australia

Monday, October 3, 2016 4:00 PM – 6:00 PM

Session #6-b
Student Technical Session

CMD DEPARTMENT

Session Chairs: Georges Zissis and Athanasios Karlis
Session Organizers: Peter Magyar, Aristotelis Farmakis
Room: Salon A

4:00 PM
Fault Diagnosis Technology of Direct-Driven Wind Turbine with Permanent Magnet Machine
Jun Hang, Southeast University, China

4:30 PM
Integrated Converters: Synthesis, Characterization, and Application to DC Nano Grid
Olive Ray, Indian Institute of Technology Kanpur, India

5:00 PM
Soft-Switching Current-Fed Power Converters for Low Voltage High Current Applications
Pan Xuewei, National University of Singapore, Singapore

5:30 PM
Design and Analysis of Novel Segmental Rotor Type Switched Reluctance Motors
Zhenyao Xu, Kyungsung University, Korea
### Session #7-a
**Student Technical Session**

**CMD DEPARTMENT**

**Session Chairs:** Akshay Kumar Rathore and Sumit Chhabria  
**Session Organizers:** Peter Magyar, Aristotelis Farmakis  
**Room:** Salon B

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<th>Time</th>
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<th>Authors/Institutions</th>
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<tr>
<td>2:00 PM</td>
<td>Gas Trolley With Gas Leakage Detection &amp; Automatically Booking System</td>
<td>Robin Thomas, Jinto Vincent, Jithin Vidya Ajith, Vimal Jyothis Engineering College, India</td>
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<td>2:30 PM</td>
<td>Automated Parking System using Programmable Logic Controller</td>
<td>Pranav Vora, Minal Kothari, Heli Bhatt, Pandit Deendayal Petroleum University, India</td>
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<td>3:00 PM</td>
<td>Student Robotics Demonstration</td>
<td>Manel Rebhi, Tunisia; Syed Muhammad Rizwan, Pakistan; Abhijeetsinh Sodha, India</td>
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### Session #8
**IACC #2**

**INDUSTRIAL AUTOMATION AND CONTROL**

**Session Chair:** Fei Gao  
**Session Organizer:** Fei Gao  
**Room:** Salon C

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<td>2016-IACC-0814 Differential Flatness Based Speed/Torque Control with State-Observers of Permanent Magnet Synchronous Motor Drives</td>
<td>Thounthong, Phatiphat; Sikkabut, Suwat; Poornoy, Nitchamon; Mungporn, Pongsiri; Yodwong, Burin; Kumam, Poom; Bizon, Nicu; Nahidmobarakeh, Babak; Pierfederici, Serge</td>
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<td>2016-IACC-0813 Evaluation and Fault Tolerant Control of a Floating Interleaved Boost Converter for Fuel Cell Systems</td>
<td>Huangflo, yigeng; Zhou, Shengrong; Chen, Fuxi; Pang, Shengzhao</td>
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<td>2016-IACC-0790 Degradation Prediction of PEM Fuel Cell Stack Based on Multi-Physical Aging Model with Particle Filter Approach</td>
<td>Zhou, Daming; Wu, Yiming; Gao; Fei; Breez, Elena; Ravey, Alexandra; Miraoui, Abbeilatif</td>
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<td>2016-IACC-0783 Add-on Module of Active Disturbance Rejection for Set-Point Tracking of Motion Control Systems</td>
<td>Xue, Wenchao; Madonski, rafal; Gao, Zhiqiang; Yi, Huang; Lakomy, Krzysztof</td>
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<td>2016-IACC-0779 Steady-State Performance Assessment of Different Compensation Topologies in Two-way IWPT System for EV Ancillary Services</td>
<td>Mohamed, Ahmed; Berzoy, Alberto; Nogueira de Almeida, Felipe Giannini; Mohammed, Osama</td>
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<td>2016-IACC-0780 Pareto Optimization of Circular Power Pads for Contactless Electric Vehicle Battery Charger</td>
<td>Moghadami, Masood; Anzalchi, Arash; Moghadasi, Amirhasan; Sarwat, Arif</td>
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Monday, October 3, 2016  2:00 PM – 6:00 PM

Session #9
IACC #8

INDUSTRIAL AUTOMATION AND CONTROL COMMITTEE

Session Chair: Saleh Saleh
Session Organizer: Saleh Saleh
Room: Salon D

2:00 PM  |  2016-IACC-0850
Reduced Order State Observer Based Feedback Control Methodologies for Doubly Fed Induction Machine
Bhattarai, Rojan; Gurung, Niroj; Kamalasadan, Sukumar

2:30 PM  |  2016-IACC-0784
Characteristics Analysis and Comparison of Conventional and Segmental Rotor Type 12/8 Switched Reluctance Motors
Xu, Zhenyao; Kim, Myeong-Ji; Lee, Dong Hee; Ahn, Jin-Woo

3:00 PM  |  2016-IACC-0766
A Novel Technique for Detection and Analysis of Hunting in Line-Start IPM Motors Using Stator Current Signature.
Rabbi, S. F.; Little, M.; Rahman, Aziz

4:00 PM  |  2016-IACC-0793
Inter-Turn Short-Circuit Fault Model for Magnetically Coupled Circuits: A General Study
Berzoy, Alberto; Mohamed, Ahmed; Mohammed, Osama

4:30 PM  |  2016-IACC-0788
Demodulation Approach for Slowly Sampled Sensorless Field Oriented Control Systems Enabling Multiple Frequency Injections
roetzer, marco; Vollmer, Ulrich; Kennel, Ralph

5:00 PM  |  2016-IACC-0806
Analysis and Performance Evaluation of Axial Flux Permanent Magnet Motors
Dwivedi, Ankita; Singh, Santosh; Srivastava, Rakesh

5:30 PM  |  2016-IACC-0811
Multiple-Vector-Based Predictive Direct Current Control for a Wound Rotor Synchronous Machine Drive
Yang, Nanfang; Nahid-Mobarakeh, Babak; Martin, Jean Philippe; Corne, Adrien

Monday, October 3, 2016  2:00 PM – 6:00 PM

Session #10
Lighting Applications and Displays

INDUSTRIAL LIGHTING AND DISPLAYS

Session Chairs: Hiroshi Unno, Kanagawa Institute of Technology, Japan; Mitsuru Nakata, NHK Science & Technology, Japan
Session Organizer: Kazutake Uehira, Kanagawa Institute of Technology, Japan
Room: Salon G

2:00 PM  |  2016-ILDC-0626
High Performance Oxide Thin-film Transistor for Large-screen, High-resolution Organic Light-emitting Diode Display
Nakata, Mitsuru; Tsuji, Hiroshi; Fujisaki, Yoshihide; Nakajima, Yoshiki; Takei, Tatsuya; Yamamoto, Toshihiro

2:30 PM  |  2016-ILDC-0627
Display Technique for Embedding Information in Real Object Images Using Temporally and Spatially Luminance-Modulated Light
Unno, Hiroshi; Uehira, Kazutake

3:00 PM  |  2016-ILDC-0607
Acoustic Resonance Detection Using Statistical Methods of Voltage Envelope Characterization in Metal Halide Lamps
Lei, Fang; DUPUIS, Pascal; Durrieu, Olivier; Zissis, Georges; Maussion, Pascal

4:00 PM  |  2016-ILDC-0613
Design Space for LED Systems Considering Photoelectrothermal Aspects
Chies, Leandro; Melo, Maicol; Vizzotto, William; Spannemberg, Rudimar; Bender, Vitor; Dalla Costa, Marco

4:30 PM  |  2016-ILDC-0615
Ageing Characterization of Colorimetric And Photometric Properties of Commercial LED Lamps
Silalahi, Zivion; DUPUIS, Pascal; Sinisuka, Ngapuli; Massol, Laurent; Zissis, Georges

5:00 PM  |  2016-ILDC-0614
Experimental Evaluation of Current Waveform on OLED Photometric Performance
Bender, Vitor; Mendes, Fernanda; Barth, Norton; Pinto, Rafael; Tiago Bandeira, Marchesan; Alonso, J Marcos

5:30 PM  |  2016-ILDC-0610
Performance Changes of Energy Saving Lamps Under Lumen Maintenance and Switching Stress Test
Dupuis, Pascal; Silalahi, Zivion; Svensson, Ingemar; Brandin, Johannes; Sinisuka, Ngapuli; Zissis, Georges
### Monday, October 3, 2016  
**2:00 PM – 6:00 PM**

**Session #11**  
**Metals Properties and Applications, Thermal Issues, Measurements & Gauging**

**METALS**

**Session Chair:** Braz Cardoso Filho, Universidade Federal de Minas Gerais  
**Session Organizer:** Braz Cardoso Filho, Universidade Federal de Minas Gerais  
**Room:** Salon H

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:00 PM</td>
<td>Automatic Gauge Control Under Laterally Asymmetric Rolling Conditions Combined with Feedforward</td>
<td>Ms. Katharina Prinz</td>
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<tr>
<td>2:30 PM</td>
<td>Use of Advanced Control with Virtual Rolling to Improve the Control of the Threading of the Tandem Hot Metal Strip Mill</td>
<td>Pittner, John; Simaan, Marwan</td>
</tr>
<tr>
<td>3:00 PM</td>
<td>On the Electromagnetic Steel Selections and Performance Impact Assessments of Synchronous Reluctance Motors</td>
<td>Liu, Cheng-Tsung; Chung, He-Yu; Lin, Sheng-Yang</td>
</tr>
<tr>
<td>4:00 PM</td>
<td>Rail Flatness Measurement Method Based on Virtual Rules</td>
<td>Manso, Pedro; Daniel, Garcia; Usamentiaga, Ruben</td>
</tr>
<tr>
<td>4:30 PM</td>
<td>Enhanced Temperature Monitoring System for Sinter in a Rotatory Cooler</td>
<td>Usamentiaga, Ruben; Daniel, Garcia</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>Wireless Sensors Supplied by Energy Harvesting Thermoelectric Generators</td>
<td>Lopera, Juan; del Arco Rodríguez, Héctor; Pèrez, Jesus; Rodríguez de Castro, Alejandro; Rendueles, Jose</td>
</tr>
<tr>
<td>5:30 PM</td>
<td>Several Configurations and Resonant Control for Multiphase Induction Heating Systems</td>
<td>Dzung, Pham Quoc; VO, Anh Tuan; NGOC, Thang Pham; Maussion, Pascal</td>
</tr>
</tbody>
</table>

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### Tuesday, October 4, 2016  
**8:00 AM – 12:00 PM**

**Session #12**  
**IACC**  
**INDUSTRIAL AUTOMATION AND CONTROL COMMITTEE**

**Session Chair:** Anurag Srivastava  
**Session Organizer:** Anurag Srivastava  
**Room:** Salon A

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>8:00 AM</td>
<td>Risk Assessment of Coordinated Cyber-Physical Attacks Against Power Grids: A Stochastic Game Approach</td>
<td>Wei, Longfei; Sarwat, Arif; Saad, Walid</td>
</tr>
<tr>
<td>8:30 AM</td>
<td>An Improved Delayed Signal Cancellation PLL for Fast Grid Synchronization under Distorted and Unbalanced Grid Condition</td>
<td>Huang, Qicheng; Kaushik, Rajashekar</td>
</tr>
<tr>
<td>9:00 AM</td>
<td>A Quadratic Programming Based Optimal Power and Battery Dispatch for Grid Connected Micro Grid</td>
<td>George, Tim; Ghosh, Sudipta; Kamalasadan, Sukumar; Mandal, Paras</td>
</tr>
<tr>
<td>9:30 AM</td>
<td>Wavelet Packet Decomposition for Power Quality Monitoring in Smart Grid</td>
<td>Bhuian, Sharif; Khan, Jasmin; Murphy, Gregory</td>
</tr>
<tr>
<td>10:30 AM</td>
<td>Damping of Low-Frequency Oscillations Using Takagi-Sugeno Fuzzy Stabilizer in Real-time</td>
<td>Hadi, Lokman; Moghavvemi, Mahmoud; Almurib, Haider; Mutaqi, Kashem</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>Pareto Based Optimal Sizing and Energy Storage Mix in Ship Power Systems</td>
<td>Elsayad, Ahmed; Elsayad, Noureldeen; Mohammed, Osama</td>
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<tr>
<td>11:30 AM</td>
<td>Adaptive Notch Filter Based Multipurpose Control Scheme for Grid-Interfaced Three-Phase Four-Wire DG Inverter</td>
<td>Chilipi, Rajasekhararreddy; Al sayari, Naji; Al Hosani, Khalifa; Beig, Abdul</td>
</tr>
</tbody>
</table>
### Session #13
#### PSEC – Session #1

**POWER SYSTEMS ENGINEERING**

**Session Chair:** Fabio Freschi  
**Session Organizer:** Kent Sayler  
**Room:** Salon B

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper Number</th>
<th>Title</th>
<th>Authors</th>
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<tr>
<td>8:00 AM</td>
<td>2016-PSEC-0662</td>
<td>Short-Circuit Current Calculations of a Harbor Electrical Distribution System with Shore Power Connection</td>
<td>Su, Chun-Lien; Chen, Jhih-Liang; Chin, Hai-Ming; Liao, Chi-Hsiang; Parise, Giuseppe; Chavdarian, Peniamin (Ben)</td>
</tr>
<tr>
<td>8:30 AM</td>
<td>2016-PSEC-0663</td>
<td>Evaluation of Voltage Drop in Harbor Electrical Distribution Systems with High Voltage Shore Connection</td>
<td>Su, Chun-Lien; Lee, Yung-Chi; Chou, Min-Hung; Chin, Hai-Ming; Parise, Giuseppe; Chavdarian, Peniamin (Ben)</td>
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<tr>
<td>9:00 AM</td>
<td>2016-PSEC-0664</td>
<td>Comprehensive Peak-Shaving for Port Cranes</td>
<td>Parise, Giuseppe; L. Parise; A. Malerba; F. M. Pepe; A. Honorati; B. Chavdarian</td>
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<tr>
<td>9:30 AM</td>
<td>2016-PSEC-0665</td>
<td>How to Include Soil Thermal Instability in Underground Cable Ampacity Calculations</td>
<td>Bates, Carson; Malmedal, Keith; Cain, David</td>
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<tr>
<td>10:30 AM</td>
<td>2016-PSEC-0666</td>
<td>Tests and Monitoring of Grounding Systems in HV/MV Substations</td>
<td>Parise, Giuseppe; L. Parise; L. Martriano; F. Tummolillo; G. Vagnati; A. Barresi</td>
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<td>11:00 AM</td>
<td>2016-PSEC-0667</td>
<td>Segmentation and Characterization of Voltage Sags in the Analysis of Industrial Circuits</td>
<td>Arias-Guzman, S.; Ustariz-Farfan, A.J.; Cano-Plata, Eduardo</td>
</tr>
</tbody>
</table>

### Session #14
#### PSPC #1

**POWER SYSTEMS PROTECTION**

**Session Chair:** Gary Fox  
**Session Organizer:** Rob Hoerauf  
**Room:** Salon C

<table>
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<tr>
<th>Time</th>
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<th>Title</th>
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<tbody>
<tr>
<td>8:00 AM</td>
<td>2016-PSPC-0710</td>
<td>Virtual Relay Design for Feeder Protection Testing with Online Simulation</td>
<td>Celeita Rodriguez, David; Perez Osorio, Juan; Ramos, Gustavo</td>
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<tr>
<td>8:30 AM</td>
<td>2016-PSPC-0703</td>
<td>A Novel Location Method and Algorithm for DC Distribution Protection</td>
<td>Feng, Xianyong; Qi, Li; Pan, Jiuping</td>
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<td>9:00 AM</td>
<td>2016-PSPC-0702</td>
<td>A Multi-Agent Based Technique for Fault Location, Isolation, and Service Restoration</td>
<td>Habib, Hany; Yossef, Tarek; Cintuglu, Mehmet; Mohammed, Osama</td>
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<td>9:30 AM</td>
<td>2016-PSPC-0709</td>
<td>Insulator Infrared Image Denoising method based on Wavelet Generic Gaussian Distribution and Map Estimation</td>
<td>He, Hongying; Lee, Wei-Jen; Luo, Dianguang; Cao, Yijia</td>
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<tr>
<td>10:30 AM</td>
<td>2016-PSPC-0704</td>
<td>A New Interconnection Protection for Co-Generation Systems</td>
<td>Saleh, Saleh; Meng, Ryan; McSheffery, Ryan; Buck, Sarah; Ozkop, Emre</td>
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<td>11:00 AM</td>
<td>2016-PSPC-0705</td>
<td>Design and Deployment of Special Protection System for Kinmen Power System</td>
<td>Yang, Jin-Shyr; Liao, Ching-Jung; Wang, Yung-Fu; Chu, Chia-Chi; Lee, Sheng-Huei; Lin, Yu-Jen</td>
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<td>11:30 AM</td>
<td>2016-PSPC-0707</td>
<td>Voltage Sag Profiles Based Fault Location in High Speed Railway Distribution System</td>
<td>Zhang, Shu; He, Zhengyou; Lee, Wei-Jen; Mai, Ruikun</td>
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### Session #15
**ESC #1**

**ENERGY SYSTEMS**

**Session Chair:** WeiJen Lee, University of Texas at Arlington  
**Session Organizer:** Joe Weber, Emerson Network Power  
**Room:** Salon D

<table>
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<tr>
<th>Time</th>
<th>Paper ID</th>
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<tr>
<td>8:00 AM</td>
<td>2016-ESC-0725</td>
<td>Improved Power Quality of Three-Phase Grid Connected Solar Energy Conversion System under Grid Voltages Distortion and Imbalances</td>
<td>Agarwal, Rahul; Hussain, Ikhaq; Singh, Bhim; Chandra, Ambrish; Al Haddad, Komal</td>
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<td>8:30 AM</td>
<td>2016-ESC-0730</td>
<td>Accurate Wind Turbine Annual Energy Computation by Advanced Modeling</td>
<td>Al-Masri, Hussein; Ehsani, Mehrdad</td>
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<td>9:00 AM</td>
<td>2016-ESC-0731</td>
<td>Impact of Wind Turbine Modeling on a Hybrid Renewable Energy System</td>
<td>Al-Masri, Hussein; Ehsani, Mehrdad</td>
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<td>9:30 AM</td>
<td>2016-ESC-0718</td>
<td>Optimized Control of the Solar Field in Parabolic Trough Solar Power Plants</td>
<td>Barcia, Lourdes A.; Martinez, Juan; Nevada Reviriego, Antonio; Garcia, Fernando; Diaz, Juan; Peón, Rogelio</td>
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<td>10:30 AM</td>
<td>2016-ESC-0712</td>
<td>Simplified Frequency Estimation for Unit Scheduling Criteria with High Wind Penetration</td>
<td>Chang, Chia-An; Lo, Ting-Chun; Wu, Yuan-Kang; Chen, Bin-Kwie</td>
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<td>11:00 AM</td>
<td>2016-ESC-0713</td>
<td>Advancement in Battery Technology: A State-of-the-Art Review</td>
<td>Chen, Aoxia</td>
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<td>11:30 AM</td>
<td>2016-ESC-0735</td>
<td>Distributed Pinning Droop Control in Isolated AC Microgrids</td>
<td>Chu, Chia-Chi; Avila, Nelson</td>
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### Session #16
**Mining #1**

**MINING**

**Session Chair:** Miguel Angel Reyes, NIOSH Pittsburgh Mining Research Division  
**Session Organizer:** Miguel Angel Reyes, NIOSH Pittsburgh Mining Research Division  
**Room:** Salon G

<table>
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<tr>
<th>Time</th>
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<tr>
<td>8:00 AM</td>
<td>2016-MIC-0740</td>
<td>Advanced Fault-Tolerant Current Control Of Five-Phase PMSM for Mining Applications</td>
<td>Semenov, Dmitry; Tian, Bing; Sun, Li; Mirzaeva, Galina</td>
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<td>8:30 AM</td>
<td>2016-MIC-0741</td>
<td>Medium Voltage IGBT Based Converters in Mine Hoist Systems.</td>
<td>Ferreira, Victor; Mendonça, Gabriel; Rocha, Anderson; Resende, Robson; Cardoso, Braz</td>
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<td>9:00 AM</td>
<td>2016-MIC-0742</td>
<td>Locked Charge Protection Algorithms Robust to Coordination with Overcurrent Protection in Ball and Sag Mill Drives</td>
<td>Valenzuela, M. Anibal; Castro, Pablo</td>
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<tr>
<td>9:30 AM</td>
<td>2016-MIC-0743</td>
<td>Design of a High Power Low Losses DC-DC Converter for Mining Applications</td>
<td>Jahromi, Mohnsen; Mirzaeva, Galina; Mitchell, Steven</td>
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<tr>
<td>10:30 AM</td>
<td>2016-MIC-0755</td>
<td>An Overview of Remote Isolation Systems Applied in Process Industries</td>
<td>Durocher, David, Mike Lane</td>
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<td>11:00 AM</td>
<td>2016-MIC-0745</td>
<td>Autonomous Control and Navigation of a Lab-Scale Underground Mining Haul Truck Using LiDAR Sensor and Triangulation – Feasibility Study</td>
<td>Azizi, Seyyedmohsen; Tarshizi, Ebrahim</td>
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<td>11:30 AM</td>
<td>2016-MIC-0746</td>
<td>Temperature and Flow Monitoring of Electrolytic Cells Using Wireless Battery-free Harsh Environment Sensors</td>
<td>Aqueveque, Pablo; Morales, Anibal; Saavedra, Francisco; Pino, Esteban; Wiechmann, Eduardo</td>
</tr>
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Tuesday, October 4, 2016  8:00 AM – 12:00 PM

Session #17
LED Drivers

INDUSTRIAL LIGHTING AND DISPLAYS

Session Chair: Marco A. Dalla Costa, UFSM, Brazil
Session Organizer: Marcos Alonso, University of Oviedo, Spain
Room: Salon H

8:00 AM  |  2016-ILDC-0608
Design and Implementation of Ferroresonant Transformer for LED Driver Systems
Lin, Ray-Lee; Tsai, Chia-Hao; Chen, Nian-Ci

8:30 AM  |  2016-ILDC-0609
Performance Comparison of Si and GaN Transistors in a Family of Synchronous Buck Converters for LED Lighting Applications
Duarte, Renan; Ferreira, Guilherme; Dalla Costa, Marco; Alonso, José

9:00 AM  |  2016-ILDC-0611
Zeta Converter for Power Quality Improvement for Multi-String LED Driver
Jha, Aman; SINGH, BHIM

9:30 AM  |  2016-ILDC-0605
Analysis and Design of a Novel Variable-Inductor-Based LED Driver for DC Lighting Grids
Alonso, M; Perdigão, Marina; Dalla Costa, Marco; Martinez, Gilberto; Osorio, Rene

10:30 AM  |  2016-ILDC-0612
SPICE-Aided Design of a Variable Inductor in LED Driver Applications
Alonso, J Marcos; Perdigão, Marina; Abdelmessih, Guirguis Z.; Dalla Costa, Marco; Wang, Yijie

Tuesday, October 4, 2016  2:00 PM – 6:00 PM

Session #19
IACC #4

INDUSTRY AUTOMATION AND CONTROL

Session Chair: Akshay Rathore
Session Organizer: Akshay Rathore
Room: Salon A

2:00 PM  |  2016-IACC-0800
Analysis, Design, and Implementation of Closed Loop Control of Electrolytic Capacitor-less Six-Pulse DC Link Inverter
Rathore, Akshay; Ghoshal, Anirban; Xuewei, Pan

2:30 PM  |  2016-IACC-0786
Power Quality Improved SMPS Using BL-CSC Converter for Welding Applications
Narula, Swati; Singh, Bhim; Bhuvaneshwari, G.; Chandra, Ambrish; Al Haddad, Kamal

3:00 PM  |  2016-IACC-0789
Efficiency Improvement on LLC Resonant Converter Using Integrated LCLC Resonant Transformer
Lin, Ray-Lee; Huang, Lung-Hua

4:00 PM  |  2016-IACC-0782
A Symmetrical Cascaded H-Bridge Multilevel Inverter Used as Shunt Active Power Filter for Ideal and Deteriorated Voltage Conditions
Mortezaei, Ali; Simoes, Marcelo; Busarello, Tiago; Al Durra, Ahmed; Marafão, Fernando
4:30 PM | 2016-IACC-0849
Current-fed Multilevel Converters: An Overview of Circuit Topologies and Modulation Techniques
Rathore, Akshay; Kulothungan, Gnana Sambandam; Srinivasan, Dipti; Edpuganti, Amarendra

5:00 PM | 2016-IACC-0767
Unity Power Factor Operation and Load Leveling of Diesel Generator Set using Battery Energy Storage System
Niwas, Ram; Singh, Bhim

5:30 PM | 2016-IACC-0799
Decoupled Power Flow Using Phase Shift Control for a Three Limb High Frequency Transformer Based Three-Port DAB Integrating PV and Energy Storage
Chattopadhyay, Ritwik; Bhattacharya, Subhashish

Tuesday, October 4, 2016  2:00 PM – 6:00 PM

Session #20
PSEC #2

POWER SYSTEMS ENGINEERING

Session Chair: Massimo Mitolo
Session Organizer: Kent Sayler
Room: Salon B

2:00 PM | 2016-PSEC-0691
Inductive Power Transfer for Automotive Applications State-of-the-Art and Future Trends
Mitolo, Massimo; Freschi, Fabio; Cirimele, Vincenzo

2:30 PM | 2016-PSEC-0678
Electrical Safety in Arc Welding Processes
Mitolo, Massimo; Freschi, Fabio; Giaccone, Luca

3:00 PM | 2016-PSEC-0677
Identification of Critical Components in Power Systems: A Game Theory Application
Pourahmadi, Farzaneh; Fotuhi-Firuzabad, Mahmud; Dehghanian, Payman

4:00 PM | 2016-PSEC-0676
Reliability Assessment of Automated Substation and Functional Integration
Salehi, Farshid; Brahman, Azade; Keypour, Reza; Lee, Wei-Jen

4:30 PM | 2016-PSEC-0679
Electrical Safety Inspections in Industrial Facilities
Neitzel, Dennis

5:00 PM | 2016-PSEC-0699
Currents Flowing Through The Human Body: The Numerical Viewpoint
Freschi, Fabio; Mitolo, Massimo

5:30 PM | 2016-PSEC-0680
Assessment of the Occupational Exposure to the Magnetic Field Produced by Spot Welding Guns in Controlled Environment and Actual Working Conditions
Canova, Aldo; Freschi, Fabio; Giaccone, Luca

Tuesday, October 4, 2016  2:00 PM – 6:00 PM

Session #21
ESC #2

ENERGY SYSTEMS

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

2:00 PM | 2016-ESC-0724
A Sinusoidal Charging Strategy for Battery Energy Storage Systems Use in Light Electric Vehicles
Chuang, Ying-Chun

2:30 PM | 2016-ESC-0726
A Study on the Dynamic Behavior of a DFIG with Sensorless-based Control in Cooperation with a Fuzzy Controlled Energy Storage System
Giannakis, Andreas; Bampoulas, Adamantios; Karlis, Athanasios

3:00 PM | 2016-ESC-0737
Multi-Functional Double Mode Inverter for Power Quality Enhancement in Smart-Grid Applications
Harirchi, Farnaz; Simoes, Marcelo; Babakmehr, Mohammad; Al Durra, Ahmed; Muyeen, S. M; Bubshait, Abdullah

4:00 PM | 2016-ESC-0723
Mid-Term Electric Load Forecasting – Application in Oil Facilities
Hernández, Eddison; Vasquez, Paul; Vera, Enrique

4:30 PM | 2016-ESC-0732
Optimizing the Control Strategy of Molten-Salt Heat Storage Systems in Thermal Solar Power Plants
Jose-Prieto, Miguel; Martinez, Juan; Peón, Rogelio; Barcia, Lourdes A.; Villegas Saiz, Pedro

5:00 PM | 2016-ESC-0727
Comparison of Flywheels and Supercapacitors for Energy Saving in Elevators
Kafalis, Konstantinos; Karlis, Athanasios

5:30 PM | 2016-ESC-0714
Interactive Model for Energy Management of Clustered Microgrids
Lu, Tianguang; Wang, Zhaoyu; Ai, Qian; Lee, Wei-Jen
Tuesday, October 4, 2016  2:00 PM – 6:00 PM

Session #22
Mining 2

MINING

Session Chair: Nicholas Damiano, NIOSH Pittsburgh Mining Research Division
Session Organizer: Miguel Angel Reyes, NIOSH Pittsburgh Mining Research Division
Room: Salon G

2:00 PM  |  2016-MIC-0754
Advanced Diagnosis of Stator Faults in Large Induction Motors for Mining Applications
Mirzoeva, Galina

2:30 PM  |  2016-MIC-0744
Process Modernization Upgrade: Selecting and Installing a New Medium-Voltage Motor Control Center
Durocher, David; Collins, Chuck; Farr, Lawrence

3:00 PM  |  2016-MIC-0756
Empirical Determination of the Effect of Lifter Wear in Mill Power for Dry Grinding
Valenzuela, M. Anibal; Cartes Varas, Richard

4:00 PM  |  2016-MIC-0757
Monitoring Physiological Variables of Mining Workers at High Altitude
Aqueveque, Pablo

4:30 PM  |  2016-MIC-0758
Advanced Diagnosis of Rotor Faults in Large Induction Motors Based on Internal Flux Measurement
Mirzoeva, Galina

5:00 PM  |  2016-MIC-0759
E-Fields of Electrode-Based Through-The-Earth (TTE) Communication
Yan, Lincan

Wednesday, October 5, 2016  8:00 AM – 12:00 PM

Session #23
IACC #5

INDUSTRIAL AUTOMATION AND CONTROL

Session Chair: Kashem Muttaqi
Session Organizer: Kashem Muttaqi
Room: Salon A

8:00 AM  |  2016-IACC-0763
Resolution-Level MPPT Controller for PMG-Based Wind Energy Conversion Systems
Saleh, Saleh

8:30 AM  |  2016-IACC-0828
Real-Time Reduced Order Model Based Adaptive Pitch Controller for Grid Connected Wind Turbines
Thakalapalli, Abilash; Ghosh, Sudipta; Kamalasadan, Sukumar

9:00 AM  |  2016-IACC-0771
Torsional Oscillation Damping Control for DFIG-based Wind Farm Participating in Power System Frequency Regulation
Xi, Xinze; Geng, Hua; Yang, Geng

9:30 AM  |  2016-IACC-0770
Two-Level Damping Control for DFIG-based Wind Farm Providing Synthetic Inertial Service
Xi, Xinze; Geng, Hua; Yang, Geng

10:30 AM  |  2016-IACC-0768
A Novel DTC Based IPMSM Drive with Improved Dynamic Performance and Efficiency
Rahman, Md.; Uddin, Mohammad

11:00 AM  |  2016-IACC-0772
Lithium-Ion Battery Charge Equalization Algorithm for Electric Vehicle Applications
Hannan, M; Hoque, M; Peng, S; Uddin, Mohammad

Wednesday, October 5, 2016  8:00 AM – 12:00 PM

Session #24
PSEC #3

POWER SYSTEMS ENERGY

Session Chair: Sergio Panetta
Session Organizer: Kent Sayler
Room: Salon B

8:00 AM  |  2016-PSEC-0668
A Dynamic Equivalent Method of Wind Farm Considering Wind Farm Dispersity and Wind Turbine Difference
Wang, Chengfu; Li, Zhe; Liang, Jun; Wang, Jinyu; Yang, Ming; Dong, Xiaoming

8:30 AM  |  2016-PSEC-0669
Design and Commissioning of a 2.5 MW DC Supply for Evaluating Megawatt Scale Smart Inverters
Leonard, Jesse

9:00 AM  |  2016-PSEC-0670
The Development of a Power Flow-Based Controller for Micro-Grid Systems
Saleh, Saleh

9:30 AM  |  2016-PSEC-0671
An Optimization Approach to Design Decentralized Load Frequency Controllers in Islanded Microgrids
Azizi, Seyyedmohsen; Khajehoddin, Ali
10:30 AM | 2016-PSEC-0672
Analytical Methods for Characterizing Frequency Dynamics in Islanded Microgrids with Gensets and Energy Storage
Renjit, Ajit

11:00 AM | 2016-PSEC-0673
Control Strategy for Islanded Microgrid Integrating Renewable Energy with Storage and Diesel Generator
Maharjan, Rabindra; Guo, Feng; Sharma, Ratnesh

11:30 AM | 2016-PSEC-0674
Mitigation of Voltage Variation by REMS for Distribution Feeders
Yeh, Chih-Chieh; Chen, Chao-Shun; Ku, Te-Tien; Lin, C. H.; Hsu, C.T.; Chuang, Hui-Jen

Wednesday, October 5, 2016 8:00 AM – 12:00 PM
Session #25
PSEC #6
POWER SYSTEMS ENGINEERING
Session Chair: Kent Sayler
Session Organizer: Kent Sayler
Room: Salon C

8:00 AM | 2016-PSEC-0693
Circulating Current Suppression for MMC-HVDC under Unbalanced Grid Conditions
Wang, Jinyu; Liang, Jun; Wang, Chengfu; Dong, Xiaoming

8:30 AM | 2016-PSEC-0694
Dynamic Simulator for Multi-Terminal Direct Current Transmission System
Liu, Zhijie; Li, Ke-Jun; Meng, Xinhao; Lee, Wei-Jen; Wang, Zhuo-di; Sun, Kaiqi

9:00 AM | 2016-PSEC-0698
Emerging Power Quality Challenges Due to Integration of Renewable Energy Sources
Liang, Xiaodong

9:30 AM | 2016-PSEC-0696
Power Flow Calculation Considering Power Exchange Control for Multi-Area Interconnection Power Networks
Dong, Xiaoming; Ding, Yuanyuan; Sun, Hua; Zhao, Penghui; Wang, Chengfu; Wang, Yong

10:30 AM | 2016-PSEC-0697
A Multi-step Dynamic Equivalent Method for Urban Power Grid Based on District-dividing
Yu, Xiaoyan; Li, Ke-Jun; Wang, Mingqiang; Wang, Zhuo-di; Sun, Kaiqi; Lou, Jie

11:00 AM | 2016-PSEC-0695
Load Aggregation From Generation Follows Load to Load Follows Generation
Saleh, Saleh; Pijnenburg, Petrus; Castillo, Eduardo
### Wednesday, October 5, 2016 8:00 AM – 12:00 PM

**Session #27**  
**Mining 3**

**MINING**

**Session Chair:** Lincan Yan, NIOSH Pittsburgh Mining Research Division  
**Session Organizer:** Miguel Angel Reyes NIOSH Pittsburgh Mining Research Division  
**Room:** Salon G

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper ID</th>
<th>Title</th>
<th>Authors</th>
</tr>
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<tbody>
<tr>
<td>8:00 PM</td>
<td>2016-MIC-0747</td>
<td>Integrated Modeling and Evaluation of Electric Mining Trucks During Propel and Retarding Modes</td>
<td>Valenzuela, M. Anibal; Valenzuela C., Javier</td>
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<td>8:30 PM</td>
<td>2016-MIC-0748</td>
<td>An Intercell Busbar Topology to Improve Resilience to Anomalies of Copper Electrorefining Process</td>
<td>Wiechmann, Eduardo; Aqueveque, Pablo; Henriquez, Jorge; Morales, Anibal</td>
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<td>9:00 PM</td>
<td>2016-MIC-0749</td>
<td>Common Mode Overvoltage Mitigation in a Medium Voltage Pump Motor Transformerless Drive in Mining Plant</td>
<td>Parreiras, Thiago; Prado, Brenno; Cardoso, Braz</td>
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<td>9:30 PM</td>
<td>2016-MIC-0750</td>
<td>Control Strategy for a High Power DC transformer with Soft Switching Scheme for Mining Applications</td>
<td>Jahromi, Mohsen; Mirzaeova, Galina; Mitchell, Steven</td>
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<td>10:30 PM</td>
<td>2016-MIC-0752</td>
<td>A Method to Evaluate Cycloconverters Commutation Robustness under Voltage Variations in Mining Distribution Systems</td>
<td>Morán, Luis; Silva, Francisco; Torres, Miguel; Weishaupt, Christian</td>
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<td>11:00 PM</td>
<td>2016-MIC-0753</td>
<td>Simulation and Measurement of Through-the-earth (TTE), Extremely Low-Frequency Signals using Copper-clad Steel Ground Rods</td>
<td>Damiano, Nicholas; Whisner, Bruce; Yan, Lincan; Zhou, Chenming</td>
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<td>11:30 PM</td>
<td>2016-MIC-0760</td>
<td>Equipotential Bars with Replaceable Connectors for Copper Electrowinning</td>
<td>Wiechmann, Eduardo; Aqueveque, Pablo; Munoz, Luis</td>
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### Wednesday, October 5, 2016 1:30 PM – 5:30 PM

**Session #28**  
**IACC #6**  
**INDUSTRIAL AUTOMATION AND CONTROL**

**Session Chair:** Sukumar Kamalasadan  
**Session Organizer:** Sukumar Kamalasadan  
**Room:** Salon A

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper ID</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30 PM</td>
<td>2016-IACC-0774</td>
<td>A Single Stage Solar PV Array Based Water Pumping System Using SRM Drive</td>
<td>Mishra, Anjanee Kumar; Singh, Bhim</td>
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<td>2:00 PM</td>
<td>2016-IACC-0795</td>
<td>Model Predictive Power Control Approach for Three-Phase Single-Stage Grid-Tied PV Module-Integrated Converter</td>
<td>Moghaddasi, Amirhasan; Sargolzaei, Arman; Khalinejad, Arash; Moghaddami, Masood; Sarwat, Arif</td>
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<td>3:30 PM</td>
<td>2016-IACC-0765</td>
<td>Model Reference Adaptive Back-EMF Estimations for Sensorless Control of Grid-Connected Doubly-Fed Induction Generators</td>
<td>Lu, Lin-Yu; Chu, Chio-Chi; Yeh, Tzu-Wei</td>
</tr>
<tr>
<td>4:00 PM</td>
<td>2016-IACC-0801</td>
<td>A Novel Control Algorithm for a Static Series Synchronous Compensator Using a Cascaded H-Bridge Converter</td>
<td>Chavan, Govind; Bhattacharya, Subhashish</td>
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<td>4:30 PM</td>
<td>2016-IACC-0781</td>
<td>Reliability Analysis of a Novel Design of Pose Deformation System for Mobile Robots through Bond Graph and Simulink</td>
<td>Cui, Jingjing; Ren, Yi; Yang, Dezhen; Zeng, Shengkui</td>
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<td>5:00 PM</td>
<td>2016-IACC-0764</td>
<td>On-chip AC-DC Multiple-Power-Supplies Module for Transcutaneously Powered Wearable Medical Devices</td>
<td>Chu, Yen-Chia; Chang-Chien, Le-Ren; Arton, N. Sertac; Czarkowski, Dariusz; Zou, Jialin; Chang, Chih-Hsiang; Chao, Jonathan</td>
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Wednesday, October 5, 2016  1:30 PM – 5:30 PM

Session #29
PSEC #4
POWER SYSTEMS ENGINEERING
Session Chair: Sergio Panetta
Session Organizer: Kent Sayler
Room: Salon B

1:30 PM  |  2016-PSEC-0681
Real Time Implementation of Three-Phase Single Stage SPV Grid Tied System Using TL-VSC
Hussain, Ikhlaq; Kandpal, Maulik; Singh, Bhim; Chandra, Ambrish; Al Haddad, Kamal

2:00 PM  |  2016-PSEC-0682
Time Base Synchronization for Interconnecting Real-Time Platforms in Co-simulation
Shoubaki, Ehab

2:30 PM  |  2016-PSEC-0683
Stability Improvement of a Two-Area Power System Connected with an Integrated Onshore and Offshore Wind Farm Using a STATCOM
Wang, Li; Chang, Che-Hao; Prokhorov, Anton V.

3:30 PM  |  2016-PSEC-0684
Stability Analysis of a Hybrid Multi-infeed HVDC System Connected between Two Offshore Wind Farms and Two Power Grids
Wang, Li; Yang, Zhi-Hao; Prokhorov, Anton V.

4:00 PM  |  2016-PSEC-0686
Probabilistic Assessment and Evaluation for Transients in a Medium voltage Three-phase Capacitor Bank Energized by Unsynchronized Vacuum Switchgears
Pires, Igor

4:30 PM  |  2016-CSC-0403
Standards and Guidelines for Grid-connected Photovoltaic Generation Systems: a Review and Comparison
Yuan-Kang Wu, N

Wednesday, October 5, 2016  1:30 PM – 5:30 PM

Session #30
PSEC #5
POWER SYSTEMS ENGINEERING
Session Chair: Fabio Freschi
Session Organizer: Kent Sayler
Room: Salon C

1:30 PM  |  2016-PSEC-0687
Factors Affecting Ground Potential Rise and Fault Currents Sling Transmission Lines with Multi-Grounded Shield Wires
Liang, Xiaodong; Wang, Chenyang

2:00 PM  |  2016-PSEC-0688
Rule-Based Data-Driven Analytics for Wide-Area Fault Detection Using Synchrophasor Data
Liang, Xiaodong; Wallace, Scott; Nguyen, Duc

2:30 PM  |  2016-PSEC-0689
A Comparative Study on Vibration- and Current-Based Approaches for Drivetrain Gearbox Fault Diagnosis
Qiao, Wei

3:30 PM  |  2016-PSEC-0690
Current-Based Fault Detection and Identification for Wind Turbine Drivetrain Gearboxes
Qiao, Wei

4:00 PM  |  2016-PSEC-0692
A Visualization Tool for Real-Time Dynamic Contingency Screening and Remedial Actions
Mitra, Joydeep
Wednesday, October 5, 2016  1:30 PM – 5:30 PM

Session #31
ESC #4

ENERGY SYSTEMS

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

1:30 PM  |  2016-ESC-0736
Subramani, Mohanraj; Gude, Srinivas; Lin, Kuan-Chu; Chu, Chia-Chi

2:00 PM  |  2016-ESC-0721
Quantification of Storage Necessary to Firm Up Wind Generation
Sulaeman, Samer

2:30 PM  |  2016-ESC-0729
Performance Evaluation of Two Magnetic Recovery Circuits of Forward Converter
Ye, Dongdong; Sun, Dinghao; Lee, Wei-Jen; Huang, Heng; Zhang, Yang

3:30 PM  |  2016-ESC-0716
A Multi-layer Optimal Chiller Operation Management Framework
Ye, Yanzhu; Sharma, Ratnesh; Guo, Feng

4:00 PM  |  2016-ESC-0733
Converter Control of PMSG Wind Turbine System for Inertia-Free Stand-Alone Microgrid
Yoo, Jae Ik; Kim, Jaewoo; Park, Jung-Wook

Wednesday, October 5, 2016  1:30 PM – 5:30 PM

Session #32
IACC #7

INDUSTRIAL AUTOMATION AND CONTROL

Session Chair: Babak Nahid-Mobarakeh
Session Organizer: Babak Nahid-Mobarakeh
Room: Salon G

1:30 PM  |  2016-IACC-0785
Design and Analysis of a Proposed Light Weight Three DOF Planar Industrial Manipulator
Aziz, Mina; Madibekov, Zhanibek; Elsayed, Abdelrahman; Abdulrazic, Mohammed; Yahya, Samer; Almurib, Haider; Moghavvemi, Mahmoud

2:00 PM  |  2016-IACC-0810
Design and Implementation of A Fire Detection and Control System for Automobiles Using Fuzzy Logic
Sowah, Robert; Ampadu, Kwame; Ofoli, Abdul; Koundi, Koudjo M.; Mills, Godfrey; Nortey, Joseph

2:30 PM  |  2016-IACC-0796
Adaptive Nonlinear Disturbance Observer Using Double Loop Self-Organizing Recurrent Wavelet-Neural-Network for Two-Axis Motion Control System
El-Sousy, Fayez; Abuhasel, Khaled

3:30 PM  |  2016-IACC-0815
An Overview of Shaft Voltage and Bearing Currents in Rotating Machines
Plazenet, Thibaud; Boileau, Thierry; Caironi, Cyrille; Nahid-Mobarakeh, Babak

4:00 AM  |  2016-IACC-0773
A Comparative Study on D Converter Based on Control Schemes of Maximum Extracted Power
El Khateb, Ahmad; Uddin, Mohammad; Rahim, Nasrudin; W. Williams, Barry
The Electro Magnetic Transient Program (EMTP) is a powerful time-domain-analysis tool that can be utilized by power system engineers to study system transients. Engineers involved with industrial and distribution systems encounter challenges mostly associated with low voltage (LV) and medium voltage (MV) Industrial systems where transient aspects and their criticalities differ from high-voltage (HV) and extra-high-voltage (EHV) utility systems. Nevertheless, due to prudent design of equipment and diverse system configurations, it is becoming more important for industrial and distribution electrical systems engineers to investigate voltage and other system transients. This tutorial includes when and how to apply EMTP to MV industrial systems, and tips, tricks and traps to assist in the utilization of EMTP. Examples include circuit breaker transient recovery voltage (TRV) for systems with high-resistance neutral grounding and systems with current-limiting reactors, capacitor switching, large motor capacitance/reactance starting, ferroresonance in potential transformer (PT) and distribution transformers and induction in pipelines parallel to a long run of overhead line. The tutorial will reference EMTP-ATP developed by BPA and its associated ATPDraw preprocessor, although engineering aspects in the tutorial are extended to other commercially available packages.

BIOGRAPHY

Rasheek M. Rifaat, P.Eng, IEEE Fellow, Technical Director - Electrical with Jacobs Engineering, Calgary, Alberta, Canada. Mr. Rifaat received a B.Sc. from Cairo University in 1972 and M.Eng. from McGill University in Montreal in 1979 in Electrical Engineering. From 1975 to 1981, he worked for Union Carbide Canada Ltd. in Beauharnois Quebec. In 1981, he joined Monenco Consultants Limited in Calgary, Alberta, and Saskmont Engineering Limited in Regina, Saskatchewan where he was 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, Alberta with work duties on large power co-generation projects, and industrial power systems. Mr. Rifaat is the Chair of the IAS/I&CPS, WG for revising the IEEE Standard for Recommended Practice for Protection and Coordination in Industrial & Commercial Systems (Series 3004). He is a Fellow Member in the IEEE and a registered professional engineer in three Canadian Provinces: Alberta, Saskatchewan and Ontario. Mr. Rifaat has published over 30 papers on cogeneration plant protection, operation and transients in industrial power systems.
WEDNESDAY, OCTOBER 5th
8:00 AM – 5:30 PM

Course ID #104072

ORGANIZER: Carl Moller
GroundCAN, Ltd.

Room: PEARL

Grounding is essential for an electrical system to operate properly and safely. IEEE Standard 81-2012 outlines various test methods and techniques that are used to measure the electrical characteristics of grounding systems. Experts from within the working group that developed IEEE Standard 81-2012 have prepared this tutorial to provide engineers and designers with an enhanced understanding of measuring earth resistivity, ground impedance, step and touch voltages and grounding system integrity. The results of a recent industry survey on ground testing will also be provided along with live, in room, demonstrations of the principles and testing techniques using test equipment and actual soil. The tutorial is not just a presentation of the guide; the instructors will share their insight and many years of experience as practitioners including many tips and tricks learned along the way. The goal is to provide participants with the knowledge and confidence to conduct the testing, or to properly evaluate the test results provided by others.

BIOGRAPHIES

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.

(1) Bryan Beske received his B.S in Electrical Engineering from the University of Wisconsin – Platteville in 1999 and obtained his Professional Engineering certification in 2006. Since 2002 he has been with the American Transmission Company (ATC) and is currently a Consultant Standards Engineer. His primary focus is lightning and grounding aspects of transmission lines and substations. Bryan is a member of ASTM, CIGRE and IEEE and is an ATC delegate for CEATI, EPRI and multiple industry standards working groups that pertain to lightning and grounding. Since 2009 he has been involved in researching the resistivity of substation surface aggregate, co-authored an IEEE Transaction paper based on that research and, in 2015, started and is Chairing an IEEE task force on aggregate resistivity.

(2) Bill Carman has a BE(Elec) and doctorate in the area of grounding system risk quantification and design, has authored over 40 technical papers, and is a conjoint Senior Lecturer at Newcastle University. For over three decades he has been closely involved in grounding system design and testing, safety analysis, standards development, research and development, and training. He is active in Australian and international grounding related standards committees. He is the chair of the joint Cigre/Cired B3:35 committee investigating the integration of quantified risk in grounding system design and operation.
(3) Dennis DeCosta, P.E. received his B.S. degree in Electrical Engineering from the University of Michigan. He has 42 years of experience which includes many years of managing and designing HV/EHV substation and underground transmission line projects. He is a registered professional engineer in six states; he is President of Commonwealth Associates, Inc.; he is a member of IEEE; and he chairs the working group which writes IEEE Standard 81 on ground testing.

(4) Carl Moller is a professional grounding engineer with over 10 years of design and testing experience with high voltage substations, hydro and thermal generation stations and mining stations. He currently works for GroundCan Ltd. Carl has published several research papers and has been a regular presenter at the annual CDEGS Users’ Group Meeting and was also a speaker at the 2014 EPEC conference. He has gained recognition as an active member of several working groups for the IEEE Substation Committee. Carl is an invited participant in the latest grounding working group for CIGRE, B3-35, and also sits on the review committee for the AEUC (Alberta Electrical Utility Code). Carl’s involvement in international committee work has also provided him with opportunities to develop training tutorials for utilities in Canada and abroad.

(5) Stephen Palmer is an Australian grounding (also called earthing) specialist with expertise in all areas related to grounding, including design, audit and test in sectors including power generation and delivery, heavy industry, mining and rail. Stephen has been full time in this field since 1998, investigating and managing the risks associated with grounding, lightning protection and interference and personally undertaking countless tests. He is presently the director of a team of 25 consultants & researchers at Safearth. Stephen has delivered formal grounding training for more than a decade and has presented at numerous conferences including for CIGRE and IEEE. He is a contributing member of technical committees within Australia, and for IEEE & CIGRE, and is secretary of B3.35, tasked to publish on substation earthing design optimization including quantified risk.

(6) Vinod Simha received his B.S. and M.S. degrees in Electrical Engineering from B.M.S. College of Engineering Bangalore, India and University of Texas at Arlington, USA in 2001 and 2005 respectively. Vinod has conducted computer simulation studies in load flow, voltage stability, power system transients, substation grounding, fuse sizing, underground cable sizing, lightning shielding, and lighting. He has designed low voltage switchgear required for electrical installations in power plants, substations, ships and multi-storied buildings. He is a member of the IEEE, and serves as an Engineer Principal in Station Engineering Design Standards group at AEP in Gahanna, OH.
IEEE-IAS Leadership

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2017 – Cleveland, OH

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The Society Council consists of all Society Officers, Department Officers and Committee Chairs, Past Presidents and Chapter Area Chairs. The Society Council meets annually and is empowered to elect officers, ratify amendments to the Constitution and establish major policy.
Process Industries

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AWARDS: Position vacant
IEEE INDUSTRY APPLICATIONS SOCIETY
TECHNICAL COMMITTEES

The technical work of the Industry Application Society takes place within its Technical Committees. For administrative convenience, the committees are organized into four Operating Departments. IAS sponsors several Technical Conferences each year. The information below will help you understand the interests of these committees, identify the IAS Technical Conferences in which the committees participate, and provide e-mail contact information for current (2015) leadership. In addition to the specific IA Conferences identified below, each year IAS has co-sponsorship arrangements with a number of non-IEEE conferences outside North America.

MANUFACTURING SYSTEMS DEVELOPMENT & APPLICATIONS DEPARTMENT

CHAIR: Mohammad Uddin, muddin@lakeheadu.ca
VC-PAPERS: Ahmed Rubaai, arubaai@Howard.edu

Electrostatic Processes Committee
The Electrostatic Processes Committee is responsible for all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to the utilization and/or control of electrostatic phenomena. Every third year, the committee holds technical sessions in conjunction with the Electrostatics Society of America (ESA). When not collocating with ESA, the committee participates in the IAS Annual Meeting.

CHAIR: Masaaki Okubo, mokubo@me.osaku-u.ac.jp
PAPERS REVIEW CHAIR: Shesha Jayaram, jayaram@uwaterloo.ca

Industrial Automation and Control Committee
The Industrial Automation & Control Committee is responsible for all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to the applications of industrial electrical and electronic control devices, systems, and methods to the conversion, regulation and utilization of electricity for the control of industrial processes, machinery and heating. IACC participates in the IAS Annual Meeting.

CHAIR: Babak Nahid-Mobarakeh, babak.nahid@gmail.com
PAPERS REVIEW CHAIR: Dr. Akshay Kumar Rathore, askshay.k.rathore@ieee.org

Industrial Lighting and Display Committee
The Industrial Lighting and Displays Committee (formerly the Production and Application of Light Committee) is responsible for all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to light and lighting. This committee holds technical sessions at the IAS Annual Meeting.

CHAIR: Kayo Suzuki, kayoszk@quartz.ocn.ne.jp
PAPERS REVIEW CHAIR: Francis Dawson dawson@ele.utoronto.ca
INDUSTRIAL POWER CONVERSION SYSTEMS DEPARTMENT

CHAIR: Po-tai Cheng, ptcheng@ieee.org  
VC-PAPERS:

Electric Machines Committee
The Electric Machines Committee is responsible for all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to the design, analysis, manufacture, and application of electric machines in industry. This committee participates in the IEEE Energy Conversion Congress and Exposition.

CHAIR: Andy Knight, andyknight@ieee.org
PAPERS REVIEW CHAIR: Andy Knight, andyknight@ieee.org

Industrial Drives Committee
The Industrial Drives Committee is responsible for all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to the suitability and application of electric motor drive equipment to industrial machinery and vice versa. IDC participates in the IEEE Energy Conversion Congress and Exposition.

CHAIR: Michael Harke, mcharke@ieee.org
PAPERS REVIEW CHAIR: Fernando Briz, gernando@hecate.edu.uniovi.es

Industrial Power Converter Committee
The Industrial Power Converter Committee is responsible for all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to equipment and circuits for the static conversion of electric power in industry. The committee participates in the IEEE Energy Conversion Congress and Exposition.

CHAIR: Pericle Zanchetta, Pericle.Zanchetta@nottingham.ac.uk
PAPERS REVIEW CHAIR: Leon Tolbert, tolbert@utk.edu

Power & Electronics Devices & Components Committee
The Power Electronics Devices and Components Committee is responsible for all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to power electronics devices and components and their applications. PEDCC participates in the IEEE Energy Conversion Congress and Exposition.

CHAIR: Shashank Krishnamurthy, shashank.km@gmail.com
PAPERS REVIEW CHAIR: Filippo Chimento, filippo.chimento@ieee.com

Renewable and Sustainable Energy Conversion Systems Committee
The Renewable and Sustainable Energy Conversion Systems Committee is responsible for all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to the design, analysis, manufacture and use of electric devices and systems for renewable and sustainable energy conversion industrial applications. This committee participates in the IEEE Energy Conversion Congress and Exposition.

CHAIR: Yilmaz Sozer, ys@uakron.edu
PAPERS REVIEW CHAIR: Yilmaz Sozer, ys@uakron.edu
Transportation Systems Committee
The Transportation Systems Committee is responsible for all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to the electrification of the transportation industry, including components, systems, and infrastructure, and encompassing all modes of transportation for people and goods. This committee participates in the IEEE Energy Conversion Congress and Exposition.

CHAIR: Burak Ozpineci, burak@ornl.gov
PAPERS REVIEW CHAIR: Mohammad Islam, mohammad.s.islam@ieee.org (transactions)
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PROCESS INDUSTRIES DEPARTMENT

CHAIR: John A, Kay, jakay@ra.rockwell.com
VC PAPERS: H Landis Floyd, h.l.floyd@ieee.org

Pulp & Paper Industry Committee
The Pulp and Paper Industry Committee is responsible for all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to the manufacture and fabrication of pulp, paper and wood products. This committee sponsors the annual IEEE Pulp & Paper Industry Technical Conference.

CHAIR: Greg Drewiske, Greg.Drewiske@Versoco.com
PAPERS REVIEW CHAIR: Chris Heron, heronc@tecowestinghouse.com
TECHNICAL: Todd Legette, Todd.Legette@ipaper.com

Petroleum & Chemicals Industry Committee
The Petroleum and Chemical Industry Committee is responsible for all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to production, manufacturing, and transportation of petroleum and chemical products. This committee sponsors two annual conferences in North America, the IEEE Petroleum & Chemical Industry Technical Conference and related conferences in Europe, Asia and Brazil.

CHAIR: Louis Barrios, louis.barrios@shell.com
PAPERS REVIEW CHAIR: David Stewart, David.Stewart@wsnelson.com

Cement Industry Committee
The Cement Industry Committee is responsible for all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to the manufacture of cement. This committee is associated with the Portland Cement Association in sponsoring the annual IEEE/PCA Cement Industry Technical Conference.

CHAIR: Corinne Fields, Corinne.fields@dcsgroup.us
PAPERS REVIEW CHAIR: Richard Schmidt, blackbird71@comcast.net

Mining Industry Committee
The Mining Industry Committee is responsible for all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to all mining and related operations. It holds technical sessions at the IAS Annual Meeting.

CHAIR: Miguel Reyes, cln4@cdc.gov
PAPERS REVIEW CHAIR: Joseph Sottile, Jr., jsottile@ieee.org
Metal Industry Committee
The Metal Industry Committee is responsible for all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to the making, shaping, or treating of metals. Specific areas of interest at related to metals include automation & control, drives, power & distribution, rotary equipment, power quality and gauging and signal processing Metal Industry Committee technical sessions and the annual committee meeting are held at the IAS Annual Meeting.
CHAIR: Thomas Dionise, tom.dionise@ieee.org
PAPERS REVIEW CHAIR: Juan Lopera, lopera@uniovi.es

Electrical Safety Committee
The IAS Electrical Safety Committee is responsible for treatment of all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to the hazards of electricity and the prevention of injury to individuals from electrical equipment and electrical energy. The Electrical Safety Committee organizes the annual Electrical Safety Workshop.
CHAIR: Stephen Wilson, sfwilson@ieee.org
VICE-CHAIR: David Pace, dapace@olin.com
PAPERS REVIEW CHAIR: Daniel Doan, doan@ieee.org

INDUSTRIAL & COMMERCIAL POWER SYSTEMS DEPARTMENT
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Power System Engineering Committee
The Power Systems Engineering Committee is responsible for the treatment of all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to the design, equipment application, analysis, installation, grounding, operation, and maintenance of safe and reliable power systems, including emergency and standby systems for industrial, commercial, and institutional facilities. Its technical sessions take place at the IEEE Industrial & Commercial Power Systems Technical Conference and the IAS Annual Meeting.
CHAIR: Kent Sayler, kent.sayler@p2seng.com
PAPERS REVIEW CHAIR: Sergio Panetta, spanetta@i-gard.com

Power System Protection Committee
The Power Systems Protection Committee is responsible for all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to power system protection. Its technical sessions take place at the IEEE Industrial & Commercial Power Systems Technical Conference and the IAS Annual Meeting.
CHAIR: Rob Hoerauf, robhoerauf@earthlink.net
PAPERS REVIEW CHAIR: Rob Hoerauf, robhoerauf@earthlink.net

Codes & Standards Committee
The Codes and Standards Committee is responsible for all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to electrical codes, rules, guides and standards affecting the design, installation or maintenance of industrial and commercial electrical power systems. Its technical sessions take place at the IEEE Industrial & Commercial Power Systems Technical Conference and the IAS Annual Meeting.
CHAIR: Steve Townsend, Steven.Townsend@gm.com
PAPERS REVIEW CHAIR: Steve Townsend, Steven.Townsend@gm.com
Energy Systems Committee
The scope of the Energy Systems Committee is the treatment of all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to control, monitoring, and management of electrical energy systems, including power generation systems for use in industrial, commercial, and institutional facilities. Its technical sessions take place at the IEEE Industrial & Commercial Power Systems Technical Conference and the IAS Annual Meeting.
CHAIR: Joe Weber, Joe.Weber@emerson.com
PAPERS REVIEW CHAIR: Wei-Jen Lee, wlee@uta.edu

Rural Electric Power Committee
The Rural Electric Power Committee is responsible for all matters within the scope of the IAS in which the emphasis or dominant factor specifically relates to rural requirements especially for agriculture, including rural electric power distribution. This committee sponsors the annual IEEE Rural Electric Power Conference.
CHAIR: Christopher Brooks, CBrooks@thinkESC.com
PAPERS REVIEW CHAIR: Paul Mixon, pmixon@astate.edu
TECHNICAL PROGRAM: Doug Turk, dougt@deepeast.com
Call for Papers
2017 IEEE Industry Applications Annual Meeting
Cincinnati, OH, USA | October 1 – October 5, 2017
www.ieee.org/ias2017

The 2017 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 papers 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. Georges Zissis.

The Metal Industry Committee is soliciting papers relating to making, shaping, or treating of metals. Drafts of proposed papers should be sent to Dr. Braz Cardoso.

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. Sergio Panetta.

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. Marco A. Dalla Costa.

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 https://www.openconf.org/ias2017iacc. Any issues with the online system should be sent to Dr. Babak Nahid-Mobarakeh.

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 gas discharges, and ESD/EOS. Draft of the proposed manuscripts should be sent to the Technical Committee Program Chair Prof. Masaaki Okubo.

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.
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 Dr. Wei-Jen Lee.

wlee@uta.edu

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.

steven.townsend@ieee.org

The **Mining Industry Committee** is seeking papers related to electrical applications and operations in mines. Drafts of proposed papers should be sent to Dr. David C Mazur.

dcmazur@ra.rockwell.com

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 2017.

jsottile@ieee.org

**AUTHORS’ DEADLINES:**

- 1 April 2017: Submission of full drafts of proposed papers to the respective technical committee identified above.
- 1 June 2017: Notification of acceptance or rejection by the respective technical committees.
- 1 July 2017: Authors to receive instructions for submission of final conference manuscripts.
- 1 August 2017: Deadline for submission of FINAL conference manuscripts to ScholarOne Manuscripts.

**GENERAL REQUIREMENTS:**

Authors must submit a draft of the proposed paper for evaluation by the sponsoring Technical Committee. Abstracts or digests alone will not be considered. One author must be designated as the corresponding author, and an e-mail address must be provided for that person. 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. IEEE student members, IEEE Life Members, and unemployed attendees must select a full conference registration to qualify to submit papers. Authors are limited to submitting no more than four (4) manuscripts against each full registration. Papers in the main technical program will be archived in IEEE Xplore. Papers that are scheduled for presentation but not actually presented will not be archived in Xplore.

Final manuscripts for the Conference Record will be submitted electronically via the IAS ScholarOne Manuscripts site. All papers will be scanned for plagiarism in CrossCheck. The submitting author must execute an IEEE Copyright Transfer at the time of manuscript submission.

All 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 2017 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 that their paper(s) be reviewed for publication following presentation at the 2017 IAS Annual Meeting.

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. The 2017 Energy Conversion Congress and Exposition will take place in Cincinnati at the same time as the IAS Annual Meeting, and there may be additional opportunities to present papers at ECCE.
STUDENT ACTIVITIES AND PROGRAM:
Students are encouraged to participate in the Annual Meeting, and are welcome to submit papers for the Student Program being organized by the IAS Chapters and Membership Department. It is not necessary or expected that student presentations will be accompanied by formal manuscripts. Student papers are not included in the Annual Meeting Conference Record or archived in Xplore, and are not eligible for publication in IAS Transactions or IAS Magazine.

Zucker Travel Grants are available to provide financial support for selected students attending the Annual Meeting; for further information, visit http://ias.ieee.org/chapters-membership/chapter-promotion-programs,-awards-and-contests.html.

NOTES:
IAS ANNUAL MEETING
Cincinnati, Ohio
October 1-5, 2017