



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!

A handwritten signature in black ink that reads "Tomy Sebastian". The signature is written in a cursive, flowing style.

Tomy Sebastian
General Chair





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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 Marriot 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:



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

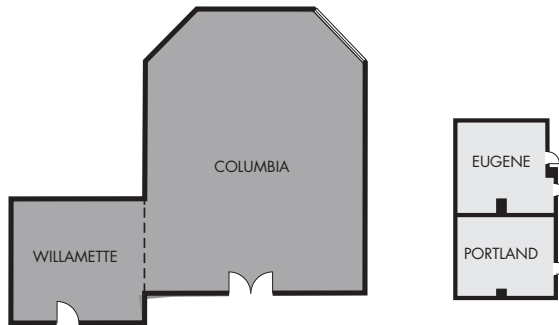


IAS

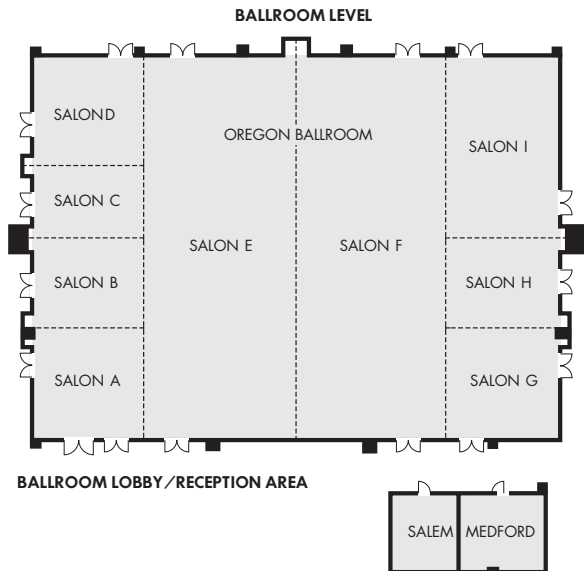
ANNUAL MEETING 2016

Hotel Floor Plan

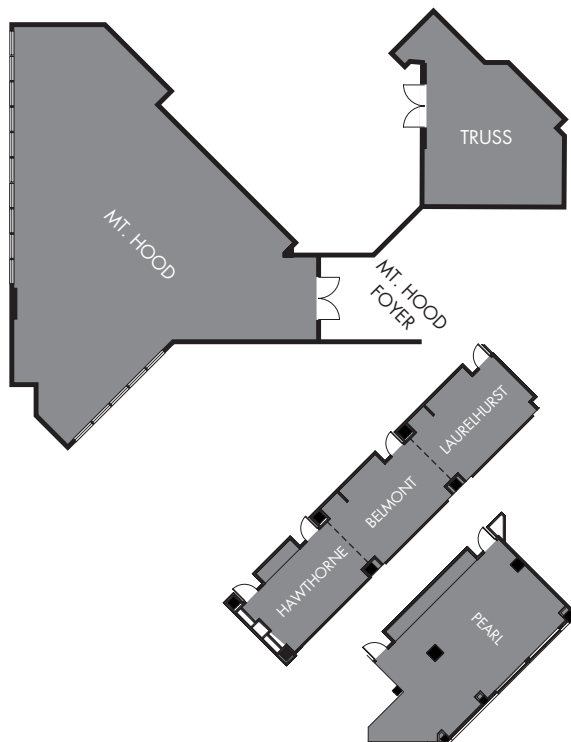
Main Lobby



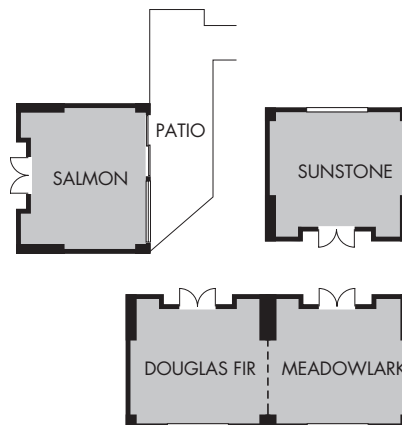
Lower Level







2nd Floor



3rd Floor



-  Main Lobby
-  Lower Level
-  2nd Floor
-  3rd Floor



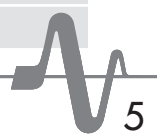
ANNUAL MEETING 2016

Schedule at a Glance

SUNDAY, OCTOBER 2nd

	Registration	Columbia	Salon D	Salon A	Salons G-H	Salon I	Salons E-F
7:00 AM	Registration						
7:30 AM							
8:00 AM						Chapter Workshop	
8:30 AM							
9:00 AM							
9:30 AM							
10:00 AM							
10:30 AM							
11:00AM							
11:30 AM							
12:00 PM							
12:30 PM							
1:00PM				*Tech Standards Coordinating Committee			
1:30PM							
2:00PM			PSP Generator Grounding Working Group Meeting	*TBCC First Principles (Base Book)	*PSP Commun. 1	TUTORIAL: Selection, Application of EMTP to Industrial and Distribution Systems	
2:30 PM				TBCC Reliability Working Group			
3:00PM			TBCC Protection & Coordination WG	TBCC MOS Working Group	TBCC Emergency Standby Power Systems WG		
3:30PM							
4:00PM							
4:30PM							
5:00PM			TBCC Power Systems Analysis WB				
5:30PM				*Guide to the IAS Annual Meeting			
6:00PM							
6:30PM							
7:00PM						Opening Reception/ Student Poster Session	
7:30PM							
8:00PM							
8:30PM							
9:00PM							
9:30 PM							
10:00PM							
10:30 PM							
11:00PM							
11:30PM							

SCHEDULE AT A GLANCE

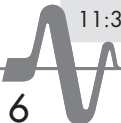


Schedule at a Glance

MONDAY, OCTOBER 3rd

SCHEDULE AT A GLANCE

	Registration	Hospitality Suite	Mt. Hood	Salon E	Columbia	Eugene	Belmont & Laurelhurst	
7:00AM	Registration	Spouse's Room	Author's Breakfast	Welcome Breakfast				
7:30AM								
8:00AM						PLENARY SESSION		
8:30 AM								
9:00AM							PSE Program Planning Subcommittee Meeting	Tech Standards Coordinating Comm Mtg. Part I
9:30 AM							Healthcare and Education Subcommittee	
10:00AM							Ports and Harbors Subcommittee	TBCC 1st Principles WB, Part II
10:30AM					COFFEE BREAK		PSE Reliability	
11:00AM							PSE Power Systems Analysis	TBCC Grounding Working Group
11:30 AM								
12:00PM								
12:30 PM					Zucker Awards Luncheon			
1:00PM								
1:30 PM								
2:00PM							PSE Emergency Standby	PSP Low Voltage Subcommittee
2:30PM							PSE Safety Operations Subcommittee	
3:00PM							PSE Power Systems Design	PSP Surge Protector
3:30 PM					COFFEE BREAK		PSE Grounding	
4:00PM							PSE Power Quality Subcommittee	PSP Medium Voltage
4:30 PM							PSE Forensics Working Group	PSP Main Committee Meeting
5:00PM					PSE Main Committee Meeting			
5:30PM								
6:00PM					Energy Systems Committee Meeting	IACC Department Meeting		
6:30 PM								
7:00PM								
7:30 PM								
8:00PM			CMD Dinner					
8:30PM								
9:00PM								
9:30 PM								
10:00PM								
10:30PM								
11:00PM								
11:30PM								

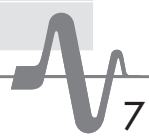


Schedule at a Glance

MONDAY, OCTOBER 3rd

Pearl	Salon A	Salon B	Salon C	Salon D	Salon G	Salon H	Salon I
PSP Communications Working Group #2	STUDEN TECHNICAL SESSION #1 (6 papers)	STUDENT TECHNICAL SESSION #2	TECHNICAL SESSION #3 IACC – Session #1		TECHNICAL SESSION #4 ILDC Session 1 – Special Session	TECHNICAL SESSION #5 Metals #1	
TBCC Power Systems Design Working Group							
(Mohla) I&CPS Meetings Comm. Meeting							
	STUDENT TECHNICAL SESSION #6	STUDENT TECHNICAL SESSION #7	TECHNICAL SESSION #8 IACC Session #2	TECHNICAL SESSION #9 IACC Session #8	TECHNICAL SESSION #10 ILDC Session #1	TECHNICAL SESSION #11 Metals 2	
ILD Committee Meeting							

SCHEDULE AT A GLANCE



Schedule at a Glance

TUESDAY, OCTOBER 4th

SCHEDULE AT A GLANCE

	Registration	Hospitality Suite	Mt. Hood	Eugene	Pearl		
7:00AM			Author's Breakfast				
7:30AM							
8:00AM							
8:30 AM						Pubs/Transactions	
9:00AM							
9:30 AM						Pubs/Magazine	
10:00AM					COFFEE BREAK		Codes and Standards Meeting
10:30AM							
11:00AM						Scholar One User Group	
11:30 AM							I&CPS Technical Program Committee
12:00PM							
12:30 PM				2017 Annual Meeting Committee Chairs			
1:00PM							
1:30 PM							
2:00PM							
2:30PM							
3:00PM	Registration	Spouse's Room					
3:30 PM				COFFEE BREAK			
4:00PM							
4:30 PM							
5:00PM							
5:30PM							
6:00PM							
6:30 PM							I&CPS Department Committee Meeting
7:00PM							
7:30 PM							
8:00PM							
8:30PM							
9:00PM							
9:30 PM							
10:00PM							
10:30PM							
11:00PM							
11:30PM							

Schedule at a Glance

TUESDAY, OCTOBER 4th

Salon A	Salon B	Salon C	Salon D	Salon G	Salon H	Salon I
TECHNICAL SESSION #12 (7 papers) IACC Session #3	TECHNICAL SESSION #13 PSEC Session #1	TECHNICAL SESSION #14 PSPC Session	TECHNICAL SESSION #15 ESC Session #1	TECHNICAL SESSION #16 Mining 1	TECHNICAL SESSION #17 ILDC Session Session #2	TECHNICAL SESSION #18 ADD Orphaned Metals session here
TECHNICAL SESSION #19 (7 papers) IACC Session #4	TECHNICAL SESSION #20 PSEC Session #2		TECHNICAL SESSION #21 ESC Session #2	TECHNICAL SESSION #22 Mining 2		
Mining Committee Meeting	MSDAD Department Meeting					

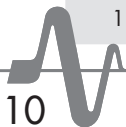
SCHEDULE AT A GLANCE

Schedule at a Glance

WEDNESDAY, OCTOBER 5th

SCHEDULE AT A GLANCE

	Registration	Hospitality Suite	Mt. Hood	Pearl	Salon A	Salon B	
7:00AM	Registration	Hospitality Suite	Author's Breakfast				
7:30AM							
8:00AM					TUTORIAL IEEE STANDARD 81 "Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Grounding System"	TECHNICAL SESSION #23 (7 papers) IACC Session #5	TECHNICAL SESSION #24 PSEC Session #3
8:30 AM							
9:00AM							
9:30 AM							
10:00AM			COFFEE BREAK				
10:30AM							
11:00AM							
11:30 AM							
12:00PM							
12:30 PM		Council Lunch					
1:00PM	Registration	Spouse's Room					
1:30 PM							
2:00PM					TECHNICAL SESSION #28 (7 papers) IACC Session #6	TECHNICAL SESSION #29 PSEC Session #4	
2:30PM							
3:00PM			COFFEE BREAK				
3:30 PM							
4:00PM							
4:30 PM							
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9:30 PM							
10:00PM							
10:30PM							
11:00PM							
11:30PM							



Schedule at a Glance

WEDNESDAY, OCTOBER 5th

Salon C	Salon D	Salon G	Eastside Rooms (Hawthorne, Belmont & Laurelhurst)	Salons E-F	Columbia
TECHNICAL SESSION #25 PSEC Session #6	TECHNICAL SESSION #26 ESC Session #3	TECHNICAL SESSION #27 Mining 3			Executive Board Meeting
TECHNICAL SESSION #30 PSEC #5	TECHNICAL SESSION #31 ESC Session #4	POSSIBLE SESSION #32			
			President's Reception		
				President's Banquet	

SCHEDULE AT A GLANCE



Schedule at a Glance

THURSDAY, OCTOBER 6th

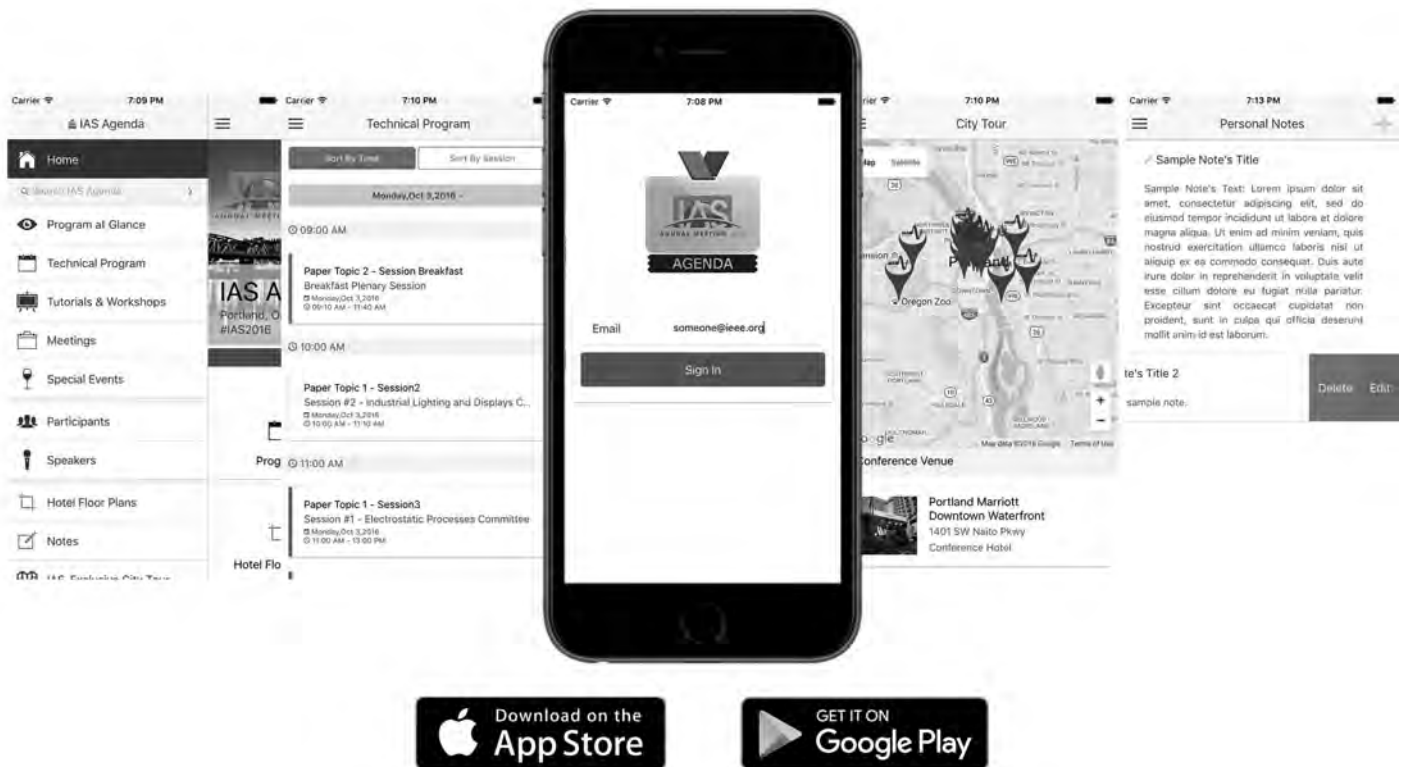
SCHEDULE AT A GLANCE

	Registration	Mt. Hood	Columbia	Salon A	Salon B	Salon C	Salon D
7:00AM	Registration	Author's Breakfast	Executive Board Meeting	TUTORIAL (T3)	TECHNICAL SESSION #32 IACC Session #7 - if not moved to Wednesday	TECHNICAL SESSION #44	TUTORIAL (T4)
7:30AM							
8:00AM							
8:30 AM							
9:00AM							
9:30 AM							
10:00AM							
10:30AM							
11:00AM							
11:30 AM							
12:00PM							
12:30 PM							
1:00PM							TUTORIAL (T5)
1:30 PM							
2:00PM							
2:30PM							
3:00PM							
3:30 PM							
4:00PM							
4:30 PM							
5:00PM							
5:30PM							



IAS ANNUAL MEETING 2016

Mobile Application (iOS and Android)



MOBILE APPLICATION

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 Evens 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!



ANNUAL MEETING 2016

Committee Meetings

Department/Committee	Start Time	End Time	Location
SATURDAY, OCTOBER 1, 2016			
CMD Department Meeting	8:00 AM	5:00 PM	TBA
SUNDAY, OCTOBER 2, 2016			
CMD Chapter Workshop	8:00 AM	5:00 PM	Salon I
Technical Standards Coord Main Meeting	1:00 PM	2:00 PM	Salon D
PSP Generator Grounding WG	2:00 PM	4:00 PM	Columbia
PSP Communications WG 1	2:00 PM	3:30 PM	Salon A
TBCC First Principles (Base Book)	2:00 PM	3:00 PM	Salon D
TBCC Reliability WG	3:00 PM	4:00 PM	Salon D
TBCC Protection and Coordination	4:00 PM	5:00 PM	Columbia
TBCC MOS Working Group	4:00 PM	5:00 PM	Salon D
TBCC Emergency Standby	4:00 PM	5:00 PM	Salon A
TBCC Power System Analysis	5:00 PM	6:00 PM	Salon D
Guide for 1st time attendees	5:00 PM	6:00 PM	Salon A
Welcome Reception/Poster Session	6:30 PM	9:00 PM	Salons E-F
MONDAY, OCTOBER 3, 2016			
Tech Standards Coordinating	9:00 AM	10:00 AM	Eugene
PSE Program Planning Subcommittee Meeting	9:00 AM	9:30 AM	Columbia
PSP Communications WG #2	9:00 AM	11:00 AM	Pearl
Healthcare and Education Subcommittee	9:30 AM	10:00 AM	Columbia
Ports and Harbors Subcommittee	10:00 AM	10:30 AM	Columbia
TBCC 1st Principles WG Part II	10:00 AM	11:00 AM	Eugene
PSE Reliability	10:30 AM	11:00 AM	Columbia
TBCC Power Systems Design WG	11:00 AM	12:00 PM	Pearl
TBCC Grounding WG	11:00 AM	12:00 PM	Eugene
PSE Power Systems Analysis	11:00 AM	12:00 PM	Columbia
I&CPS Meetings Committee	12:00 PM	2:00 PM	Pearl
PSE Emergency Standby	2:00 PM	2:30 PM	Columbia
PSP Low Voltage Subcommittee	2:00 PM	3:00 PM	Eugene
PSE Safety, Operations Subcommittee	2:30 PM	3:00 PM	Columbia
PSP Surge Protection Subcommittee	3:00 PM	3:30 PM	Eugene
PSE Power Systems Design	3:00 PM	3:30 PM	Columbia
PSE Grounding Subcommittee	3:30 PM	4:00 PM	Columbia
PSP Medium Voltage	4:00 PM	4:30 PM	Eugene
PSE Power Quality SCM	4:00 PM	4:30 PM	Columbia
PSE Forensics Working Group	4:30 PM	5:00 PM	Columbia
PSP Main Committee Meeting	4:30 PM	5:30 PM	Eugene
PSE Main Committee Meeting	5:00 PM	6:00 PM	Columbia
Energy Systems Committee Meeting	6:00 PM	7:00 PM	Columbia
IACC Department Meeting	6:00 PM	8:00 PM	Eugene
ILDC Committee Meeting	6:00 PM	7:00 PM	Pearl
Metals Committee Meeting	6:00 PM	7:30 PM	Belmont & Laurelhurst
TUESDAY, OCTOBER 4, 2016			
Pubs/Transactions	8:00 AM	9:00 AM	Eugene
Pubs/Magazine	9:00 AM	10:00 AM	Eugene
Scholar One User Group	10:30 AM	12:00 PM	Eugene
I&CPS Technical Program Committee	11:30 AM	2:00 PM	Pearl
2017 Annual Meeting Committee Chairs	12:30 PM	1:30 PM	Eugene
Codes and Standards Committee	9:30 PM	10:30 PM	Pearl
Mining Committee Meeting	6:00 PM	7:00 PM	Salon A
I&CPS Department Committee Meeting	6:00 PM	8:00 PM	Pearl
MSDAD Department Meeting	6:00 PM	7:00 PM	Salon B

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.



IAS ANNUAL MEETING 2016

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

9:00 AM
Control Management of a Propulsion System with Supercapacitors for Electric and Hybrid Vehicles
Waled Mohamed, *Sapienza University of Rome, Italy*

9:30 AM
Heterogeneous Platform for IEDs Connection on a Fault Location Engine of Distribution Systems with DG Using DSSim-PC
David Celeita, *Universidad de los Andes, Colombia*

10:00 AM
Use of Infrared Thermography (IRT), as a Non-destructive Testing Method for Fault Diagnosis and Prognosis on Sailing Boats and Safety Protocols at Sea
Emmanouil Bafounis-Kottas, *Democritus University of Thrace, Xanthi, Greece*

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

11:00 AM
Energy Storage System for Wind Turbines
Ryan Meng, Mathieu Malone, Ryan McSheffery, Sarah Buck, *University of New Brunswick, Canada*

11:30 AM
Novel MPPT Based on Board Solar Charging System for an Electric Scooter
Jyothis Joseph, Mehanath KV, Sachin Ranjith, Shejin George, Akash Manoj, Anirudh Jithendran, *Vimal Jyothis Engineering College, India*

12:00 PM
A Non-Intrusive Air-Gap Torque Method for Efficiency Estimation of Induction Machines
Anil Kumar Mathur, Sandeep Kumar, Sudheer Kumar, *Indian Institute of Technology Mandi, India*

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

9:00 AM
PMU Based Fault Location Method for Distribution Systems
Aneesh Rajeev, *Amrita School of Engineering, Amritapuri Campus, Kollam, Kerala, India*

9:30 AM
Theoretical Study and Experimental Analysis of a Thermal-Photovoltaic Panel
Cristina Moscatiello, *Sapienza University of Rome, Italy*

10:00 AM
Theoretical Study and Experimental Analysis of the Maximum Power Point Tracking for Wind Turbine
Michelle G Gomez De Franco, *Sapienza University of Rome, Italy*

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.

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 ODDROID 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 George, 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; Esa, Yusef; 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, Hyojong; 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. Nornliella, Joaquín; Llera T., Rocío; 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*

Monday, October 3, 2016

2:00 PM – 3:30 PM

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

2:00 PM

Gas Trolley With Gas Leakage Detection & Automatically Booking System

Robin Thomas, Jintu Vincent, Jithin Vidya Ajith, *Vimal Jyothis Engineering College, India*

2:30 PM

Automated Parking System using Programmable Logic Controller

Pranav Vora, Minal Kothari, Heli Bhatt, *Pandit Deendayal Petroleum University, India*

3:00 PM

Student Robotics Demonstration

Manel Rebhi, *Tunisia*; Syed Muhammad Rizwan, *Pakistan*; Abhijeetsinh Sodha, *India*

Monday, October 3, 2016

4:00 PM – 6:00 PM

Session #7-b Student Technical Session

CMD DEPARTMENT

Session Chairs: Ines Abdennaji and Christina-Panagiota Malliou

Session Organizers: Peter Magyar, Aristotelis Farmakis

Room: Salon B

4:00 PM

Humanitarian Project Contest Session

4:30 PM

Implementation of Pondok Terang Renewable Energy & IoT Technology Applications to Provide Sustainability of Electricity Power

Amand Julia Isa, Dewi Mariam, Masrizza Kurniawan, M. Ibnu Muharrom, *Indonesia*

5:00 PM

Electrical Installations in Extreme Poverty Areas: Pachacutec-Ventaniilla

Paulo Steven Hanco Chuco, Julio Flavio Yataco Vivas, Richard Hipolito Herrera Estrada, *Peru*

5:30 PM

Solar Safe Water Project for Schools

Shahid Zulfiqar Muhamamd, Usman Munawar, *Pakistan*

Monday, October 3, 2016

2:00 PM – 6:00 PM

Session #8 IACC #2

INDUSTRIAL AUTOMATION AND CONTROL

Session Chair: Fei Gao

Session Organizer: Fei Gao

Room: Salon C

2:00 PM | 2016-IACC-0814

Differential Flatness Based Speed/Torque Control with State-Observers of Permanent Magnet Synchronous Motor Drives

Thounthong, Phatiphat; Sikkabut, Suwat; Poonnoy, Nitchamon; Mungporn, Pongsiri; Yodwong, Burin; Kumam, Poom; Bizon, Nicu; Nahidmobarakeh, Babak; Pierfederici, Serge

2:30 PM | 2016-IACC-0813

Evaluation and Fault Tolerant Control of a Floating Interleaved Boost Converter for Fuel Cell Systems

Huangfu, yigeng; Zhuo, Shengrong; Chen, Fuxi; Pang, Shengzhao

3:00 PM | 2016-IACC-0790

Degradation Prediction of PEM Fuel Cell Stack Based on Multi-Physical Aging Model with Particle Filter Approach

Zhou, Daming; Wu, Yiming; Gao, Fei; Breaz, Elena; Ravey, Alexandre; Miraoui, Abdellatif

3:30 PM | 2016-IACC-0769

Bidirectional Wireless Power Transfer Topology Using Current-Fed Half Bridge CLC Transmitter LC Receiver Configuration for Medium Power Applications

Rathore, Akshay; Samanta, Suvendu

4:30 PM | 2016-IACC-0783

Add-on Module of Active Disturbance Rejection for Set-Point Tracking of Motion Control Systems

Xue, Wenchao; Madonski, rafal; Gao, Zhiqiang; Yi, Huang; Lakomy, Krzysztof

5:00 PM | 2016-IACC-0779

Steady-State Performance Assessment of Different Compensation Topologies in Two-way IWPT System for EV Ancillary Services

Mohamed, Ahmed; Berzoy, Alberto; Nogueira de Almeida, Felipe Giannini; Mohammed, Osama

5:30 PM | 2016-IACC-0780

Pareto Optimization of Circular Power Pads for Contactless Electric Vehicle Battery Charger

Moghaddami, Masood; Anzalchi, Arash; Moghadasi, Amirhasan; Sarwat, Arif

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; Kamalasadana, 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, Nórton; 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; Brundin, 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

2:00 PM | 2016-METC-0642

Automatic Gauge Control Under Laterally Asymmetric Rolling Conditions Combined with Feedforward

Ms. Katharina Prinz

2:30 PM | 2016-METC-0643

Use of Advanced Control with Virtual Rolling to Improve the Control of the Threading of the Tandem Hot Metal Strip Mill

Pittner, John; Simaan, Marwan

3:00 PM | 2016-METC-0644

On the Electromagnetic Steel Selections and Performance Impact Assessments of Synchronous Reluctance Motors

Liu, Cheng-Tsung; Chung, He-Yu; Lin, Sheng-Yang

4:00 PM | 2016-METC-0646

Rail Flatness Measurement Method Based on Virtual Rules

Manso, Pedro; Daniel, García; Usamentiaga, Ruben

4:30 PM | 2016-METC-0648

Enhanced Temperature Monitoring System for Sinter in a Rotatory Cooler

Usamentiaga, Ruben; Daniel, García

5:00 PM | 2016-METC-0649

Wireless Sensors Supplied by Energy Harvesting Thermoelectric Generators

Lopera, Juan; del Arco Rodríguez, Héctor; Pérez, Jesus; Rodríguez de Castro, Alejandro; Rendueles, Jose

5:30 PM | 2016-METC-0650

Several Configurations and Resonant Control for Multiphase Induction Heating Systems

Dzung, Phan Quoc; VO, Anh Tuan; NGOC, Thang Pham; Maussion, Pascal

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

8:00 AM | 2016-IACC-0776

Risk Assessment of Coordinated Cyber-Physical Attacks Against Power Grids: A Stochastic Game Approach

Wei, Longfei; Sarwat, Arif; Saad, Walid

8:30 AM | 2016-IACC-0794

An Improved Delayed Signal Cancellation PLL for Fast Grid Synchronization under Distorted and Unbalanced Grid Condition

Huang, Qicheng; Kaushik, Rajashekara

9:00 AM | 2016-IACC-0829

A Quadratic Programming Based Optimal Power and Battery Dispatch for Grid Connected Micro Gri

George, Tim; Ghosh, Sudipta; Kamalasadana, Sukumar; Mandal, Paras

9:30 AM | 2016-IACC-0791

Wavelet Packet Decomposition for Power Quality Monitoring in Smart Grid

Bhuiyan, Sharif; Khan, Jesmin; Murphy, Gregory

10:30 AM | 2016-IACC-0792

Damping of Low-Frequency Oscillations Using Takagi-Sugeno Fuzzy Stabilizer in Real-time

Hadi, Lokman; Moghavvemi, Mahmoud; Almurib, Haider; Muttaqi, Kashem

11:00 AM | 2016-IACC-0778

Pareto Based Optimal Sizing and Energy Storage Mix in Ship Power Systems

Elsayed, Ahmed; Elsayad, Noureldeen; Mohammed, Osama

11:30 AM | 2016-IACC-0777

Adaptive Notch Filter Based Multipurpose Control Scheme for Grid-Interfaced Three-Phase Four-Wire DG Inverter

Chilipi, Rajasekhareddy; Al sayari, Najji; Al Hosani, Khalifa; Beig, Abdul

Tuesday, October 4, 2016

8:00 AM – 12:00 PM

Session #13 PSEC – Session #1

POWER SYSTEMS ENGINEERING

Session Chair: Fabio Freschi
Session Organizer: Kent Saylor
Room: Salon B

8:00 AM | 2016-PSEC-0662

Short-Circuit Current Calculations of a Harbor Electrical Distribution System with Shore Power Connection

Su, Chun-Lien; Chen, Jih-Liang; Chin, Hai-Ming; Liao, Chi-Hsiang; Parise, Giuseppe; Chavdarian, Peniamin (Ben)

8:30 AM | 2016-PSEC-0663

Evaluation of Voltage Drop in Harbor Electrical Distribution Systems with High Voltage Shore Connection

Su, Chun-Lien; Lee, Yung-Chi; Chou, Min-Hung; Chin, Hai-Ming; Parise, Giuseppe; Chavdarian, Peniamin (Ben)

9:00 AM | 2016-PSEC-0664

Comprehensive Peak-Shaving for Port Cranes

Parise, Giuseppe; L. Parise; A. Malerba; F. M. Pepe; A. Honorati; B. Chavdarian

9:30 AM | 2016-PSEC-0665

How to Include Soil Thermal Instability in Underground Cable Ampacity Calculations

Bates, Carson; Malmedal, Keith; Cain, David

10:30 AM | 2016-PSEC-0666

Tests and Monitoring of Grounding Systems in HV/MV Substations

Parise, Giuseppe; L. Parise; L. Martirano; F. Tummlillo; G. Vagnati; A. Barresi

11:00 AM | 2016-PSEC-0667

Segmentation and Characterization of Voltage Sags in the Analysis of Industrial Circuits

Arias-Guzman, S.; Ustariz-Farfan, A.J.; Cano-Plata, Eduardo

11:30 AM | 2016-PSEC-0404

High Voltage Shore Connections (HVSC), an IEC/ISO/IEEE 80005-1 Compliant Solution: The Neutral Grounding System

Parise, Giuseppe; L. Parise; A. Malerba; S. Sabatini; P.(B.) Chavdarian; Chun-Lien Su

Tuesday, October 4, 2016

8:00 AM – 12:00 PM

Session #14 PSPC #1

POWER SYSTEMS PROTECTION

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

8:00 AM | 2016-PSPC-0710

Virtual Relay Design for Feeder Protection Testing with Online Simulation

Celeita Rodriguez, David; Perez Osorio, Juan; Ramos, Gustavo

8:30 AM | 2016-PSPC-0703

A Novel Location Method and Algorithm for DC Distribution Protection

Feng, Xianyong; Qi, Li; Pan, Jiuping

9:00 AM | 2016-PSPC-0702

A Multi-Agent Based Technique for Fault Location, Isolation, and Service Restoration

Habib, Hany; Yossef, Tarek; Cintuglu, Mehmet; Mohammed, Osama

9:30 AM | 2016-PSPC-0709

Insulator Infrared Image Denoising method based on Wavelet Generic Gaussian Distribution and Map Estimation

He, Hongying; Lee, Wei-Jen; Luo, Diansheng; Cao, Yijia

10:30 AM | 2016-PSPC-0704

A New Interconnection Protection for Co-Generation Systems

Saleh, Saleh; Meng, Ryan; McSheffery, Ryan; Buck, Sarah; Ozkop, Emre

11:00 AM | 2016-PSPC-0705

Design and Deployment of Special Protection System for Kinmen Power System

Yang, Jin-Shyr; Liao, Ching-Jung; Wang, Yung-Fu; Chu, Chia-Chi; Lee, Sheng-Huei; Lin, Yu-Jen

11:30 AM | 2016-PSPC-0707

Voltage Sag Profiles Based Fault Location in High Speed Railway Distribution System

Zhang, Shu; He, Zhengyou; Lee, Wei-Jen; Mai, Ruikun

Tuesday, October 4, 2016

8:00 AM – 12:00 PM

Session #15 ESC #1

ENERGY SYSTEMS

Session Chair: Wei-Jen Lee, *University of Texas at Arlington*

Session Organizer: Joe Weber, *Emerson Network Power*

Room: Salon D

8:00 AM | 2016-ESC-0725

Improved Power Quality of Three-Phase Grid Connected Solar Energy Conversion System under Grid Voltages Distortion and Imbalances

Agarwal, Rahul; Hussain, Ikhtlaq; Singh, Bhim; Chandra, Ambrish; Al Haddad, Kamal

8:30 AM | 2016-ESC-0730

Accurate Wind Turbine Annual Energy Computation by Advanced Modeling

Al-Masri, Hussein; Ehsani, Mehرداد

9:00 AM | 2016-ESC-0731

Impact of Wind Turbine Modeling on a Hybrid Renewable Energy System

Al-Masri, Hussein; Ehsani, Mehرداد

9:30 AM | 2016-ESC-0718

Optimized Control of the Solar Field in Parabolic Trough Solar Power Plants

Barcia, Lourdes A.; Martínez, Juan; Nevado Reviriego, Antonio; García, Fernando; Díaz, Juan; Peón, Rogelio

10:30 AM | 2016-ESC-0712

Simplified Frequency Estimation for Unit Scheduling Criteria with High Wind Penetration

Chang, Chia-An; Lo, Ting-Chun; Wu, Yuan-Kang; Chen, Bin-Kwie

11:00 AM | 2016-ESC-0713

Advancement in Battery Technology: A State-of-the-Art Review

Chen, Aoxia

11:30 AM | 2016-ESC-0735

Distributed Pinning Droop Control in Isolated AC Microgrids

Chu, Chia-Chi; Avila, Nelson

Tuesday, October 4, 2016

8:00 AM – 12:00 PM

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

8:00 AM | 2016-MIC-0740

Advanced Fault-Tolerant Current Control Of Five-Phase PMSM for Mining Applications

Semenov, Dmitry; Tian, Bing; Sun, Li; Mirzaeva, Galina

8:30 AM | 2016-MIC-0741

Medium Voltage IGBT Based Converters in Mine Hoist Systems.

Ferreira, Victor; Mendonça, Gabriel; Rocha, Anderson; Resende, Robson; Cardoso, Braz

9:00 AM | 2016-MIC-0742

Locked Charge Protection Algorithms Robust to Coordination with Overcurrent Protection in Ball and Sag Mill Drives

Valenzuela, M. Anibal; Castro, Pablo

9:30 AM | 2016-MIC-0743

Design of a High Power Low Losses DC-DC Converter for Mining Applications

Jahromi, Mohsen; Mirzaeva, Galina; Mitchell, Steven

10:30 AM | 2016-MIC-0755

An Overview of Remote Isolation Systems Applied in Process Industries

Durocher, David, Mike Lane

11:00 AM | 2016-MIC-0745

Autonomous Control and Navigation of a Lab-Scale Underground Mining Haul Truck Using LiDAR Sensor and Triangulation – Feasibility Study

Azizi, Seyyedmohsen; Tarshizi, Ebrahim

11:30 AM | 2016-MIC-0746

Temperature and Flow Monitoring of Electrolytic Cells Using Wireless Battery-free Harsh Environment Sensors

Aqueveque, Pablo; Morales, Anibal; Saavedra, Francisco; Pino, Esteban; Wiechmann, Eduardo

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, J Marcos; 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

11:00 AM | 2016-ILDC-0624

Multi-objective Methodology to Find the Optimal Forward Current to Supply Light Emitting Diode (LED) Lightings

Dulout, Jérémy; Barroso, Angel; Séguier, Lionel; Jammes, Bruno; Dupuis, Pascal; Zisis, Georges; Alonso, Corinne

11:30 AM | 2016-ILDC-0625

A New Active Hybrid-Series-Parallel PWM Dimming Scheme for Off-Line Integrated LED Drivers with High Efficiency and Fast Dynamics

Abdelmessih, Guirguis Z.; Alonso, J Marcos

Tuesday, October 4, 2016

8:00 AM – 9:00 AM

Session #18 Metals III Session

METALS

Session Chair: Tom Dionise
Session Organizer: Tom Dionise
Room: Salon I

8:00 AM | 2016-METC-0645

Piecewise Variable Parameter Piecewise Variable Loss Model of Laminated Steel and its Application in Fine Analysis of Analysis of Iron loss of Inverter-Fed Induction Motors

Zhao, Haisen; Zhang, Dongdong; Wu, Yilong; Zhang, Dongdong; Xu, Guorui

8:30 AM | 2016-METC-0647

Nonlinear Observer for Temperatures and Emissivities in a Strip Annealing Furnace

Strommer, Stephan; Niederer, Martin; Steinboeck, Andreas; Jadachowski, Lukas; Kugi, Andreas

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 Saylor
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; Martínez, 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

Mirzaeva, 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

Mirzaeva, 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
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

Thakallapelli, Abilash; Ghosh, Sudipta; Kamalasadana, 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 Saylor

Room: Salon B

8:00 AM | 2016-PSEC-0668

A Dynamic Equivalent Method of Wind Farm Considering Wind farm Dispersion 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 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 Saylor
Session Organizer: Kent Saylor
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, Xinhan; 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 #26 ESC #3

ENERGY SYSTEMS

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

8:00 AM | 2016-ESC-0734

Smart Micro Grids for Nearly Zero Energy Buildings
Martirano, Luigi; Habib, Emanuele; Parise, Giuseppe; Greco, Giacomo; Manganeli, Matteo; Massarella, Ferdinando; Parise, Luigi

8:30 AM | 2016-ESC-0717

Power Management and Control Strategies for Efficient Operation of a Solar Power Dominated Hybrid DC Microgrid for Remote Power Applications
Mendis, Nishad; Mahmud, Md Apel; Kanti Roy, Tushar; Haque, Enamul; Muttaqi, Kashem

9:00 AM | 2016-ESC-0739

Smart Grid Demand Response Management Using Internet of Things for Load Shedding and Smart-Direct Load Control
Mortaji, Hamed; Ow, Siew Hock; Moghavvemi, Mahmoud; Almurib, Haider

9:30 AM | 2016-ESC-0715

Control Response Analysis of Aggregated Energy Storage Household Appliances
Polgari, Beata; Divényi, Dániel; Raisz, David

10:30 AM | 2016-ESC-0738

Implementation and Control of Small-Scale Hybrid Standalone Power Generation System Employing Wind and Solar Energy
Rezkallah, Miloud; Sharma, Shailendra; Chandra, Ambrish; Singh, Bhim

11:00 AM | 2016-ESC-0722

An Intelligent Driver Alerting System for Real-time Range Indicator Embedded in Electric Vehicles
Sarrafan, Kaveh; Muttaqi, Kashem; Sutanto, Danny; Town, Graham

11:30 AM | 2016-ESC-0719

Variable Flow Controls of Closed System Pumps for Energy Savings in Maritime Power Systems
Su, Chun-Lien; Liao, Chi-Hsiang; Chou, Tso-Chu; Chou, Min-Hung; Guerrero, J. M.

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

8:00 PM | 2016-MIC-0747

Integrated Modeling and Evaluation of Electric Mining Trucks During Propel and Retarding Modes

Valenzuela, M. Anibal; Valenzuela C., Javier

8:30 PM | 2016-MIC-0748

An Intercell Busbar Topology to Improve Resilience to Anomalies of Copper Electrorefining Process

Wiechmann, Eduardo; Aqueveque, Pablo; Henriquez, Jorge; Morales, Anibal

9:00 PM | 2016-MIC-0749

Common Mode Overvoltage Mitigation in a Medium Voltage Pump Motor Transformerless Drive in Mining Plant

Parreiras, Thiago; Prado, Brenno; Cardoso, Braz

9:30 PM | 2016-MIC-0750

Control Strategy for a High Power DC transformer with Soft Switching Scheme for Mining Applications

Jahromi, Mohsen; Mirzaeva, Galina; Mitchell, Steven

10:30 PM | 2016-MIC-0752

A Method to Evaluate Cycloconverters Commutation Robustness under Voltage Variations in Mining Distribution Systems

Morán, Luis; Silva, Francisco; Torres, Miguel; Weishaupt, Christian

11:00 PM | 2016-MIC-0753

Simulation and Measurement of Through-the-earth (TTE), Extremely Low-Frequency Signals using Copper-clad, Steel Ground Rods

Damiano, Nicholas; Whisner, Bruce; Yan, Lincan; Zhou, Chenming

11:30 PM | 2016-MIC-0760

Equipotential Bars with Replaceable Connectors for Copper Electrowinning

Wiechmann, Eduardo; Aqueveque, Pablo; Munoz, Luis

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

Session #28 IACC #6

INDUSTRIAL AUTOMATION AND CONTROL

Session Chair: Sukumar Kamalasadana

Session Organizer: Sukumar Kamalasadana

Room: Salon A

1:30 PM | 2016-IACC-0774

A Single Stage Solar PV Array Based Water Pumping System Using SRM Drive

Mishra, Anjanee Kumar; Singh, Bhim

2:00 PM | 2016-IACC-0795

Model Predictive Power Control Approach for Three-Phase Single-Stage Grid-Tied PV Module-Integrated Converter

Moghadasi, Amirhasan; Sargolzaei, Arman; Khalilnejad, Arash; Moghaddami, Masood; Sarwat, Arif

3:30 PM | 2016-IACC-0765

Model Reference Adaptive Back-EMF Estimations for Sensorless Control of Grid-Connected Doubly-Fed Induction Generators

Lu, Lin-Yu; Chu, Chia-Chi; Yeh, Tzu-Wei

4:00 PM | 2016-IACC-0801

A Novel Control Algorithm for a Static Series Synchronous Compensator Using a Cascaded H-Bridge Converter

Chavan, Govind; Bhattacharya, Subhashish

4:30 PM | 2016-IACC-0781

Reliability Analysis of a Novel Design of Pose Deformation System for Mobile Robots through Bond Graph and Simulink

Cui, Jingjing; Ren, Yi; Yang, Dezhen; Zeng, Shengkui

5:00 PM | 2016-IACC-0764

On-chip AC-DC Multiple-Power-Supplies Module for Transcutaneously Powered Wearable Medical Devices

Chu, Yen-Chia; Chang-Chien, Le-Ren; Artan, N. Sertac; Czarkowski, Dariusz; Zou, Jialin; Chang, Chih-Hsiang; Chao, Jonathan

Wednesday, October 5, 2016

1:30 PM – 5:30 PM

Session #29 PSEC #4

POWER SYSTEMS ENGINEERING

Session Chair: Sergio Panetta
Session Organizer: Kent Saylor
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 Saylor
Room: Salon C

1:30 PM | 2016-PSEC-0687

Factors Affecting Ground Potential Rise and Fault Currents Slong 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

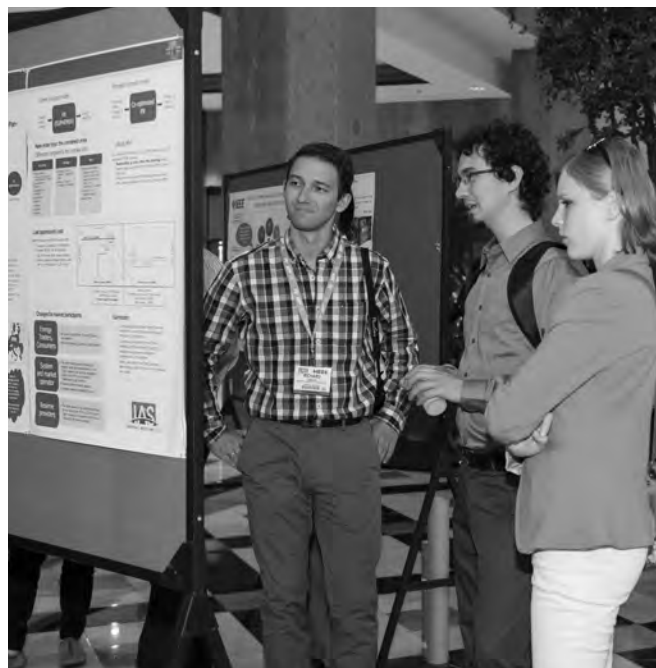
Current-Based Fault Detection and Identification for Wind Turbine Drivetrain Gearboxes

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

An Efficient Method for Small-Signal Stability Assessment of P-f/Q-V Droop Control in an Isolated Micro-Grid
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; Moghavemi, 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; Koumadi, 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





Tutorials

SUNDAY, OCTOBER 2nd

2:00 PM – 6:00 PM

Course ID# 104068

Application of EMTP to Industrial and Distribution Power Systems

ORGANIZER: Rasheek Rifaat
Jacobs Canada

Room: SALONS G-H

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

IEEE Standard 81 “Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Grounding System

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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Wei-Jen Lee

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2016 INDUSTRY APPLICATIONS SOCIETY COUNCIL

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

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IEEE INDUSTRY APPLICATION 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.

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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.

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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

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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.

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INDUSTRIAL POWER CONVERSION SYSTEMS DEPARTMENT

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Electric Machines Committee

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Industrial Drives Committee

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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

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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 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.

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Electrical Safety Committee

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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.

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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.

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Rural Electric Power Committee

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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 Zisis.

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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.

braz.cardoso@ieee.org

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.

spanetta@i-gard.com

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.

marcodc@gedre.ufsm.br

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.

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

mokubo@me.osakafu-u.ac.jp

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

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.

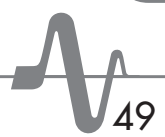
STUDENT ACTIVITIES AND PROGRAM:

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:

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IAS ANNUAL MEETING
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