IEEE IAS Shanghai Chapter,

Supported by School of Mechanical Automation, Shanghai University, Shanghai automobile electric engineering technology research center
Presents a One Days IEEE IAS Region 10 Workshop on

New energy vehicle electric intelligent technology seminar - Electromagnetic , Noise, Vibration

Date: 18 October 2016 (Shanghai),
Time: 8:30am – 5:30pm
Venue: YanChang Campus of Shanghai University, YanChang Road, No.149, Lehu, 1th meeting Room

Workshop Content

The workshop focuses on Electromagnetic, Noise, Vibration Technology in industrial and vehicular motor design applications which are getting more and more important owing to the global shortage of energy resources. Brief descriptions on the topics of this workshop are given as follows:

A look Forward in Energy Conversion Technologies following 50 Years of History in IEEE's Industry Applications Society – The presentation will focus on some of today's industry applications of power electronics. Included will be details on application of large scale three-phase uninterruptable power supply (UPS) systems applied in a Greenfield Data Center, delivering high-efficiency power conversion in one of the world's highest energy density systems. Examples of micro-grid applications for industry and how users are capitalizing on the alternative energy and future open energy markets. Medium voltage adjustable frequency drives using high-efficiency IGBTs installed as an upgrade at a US based steel mill runout table transfer system resulting in monthly energy savings of US $45,000. This will be followed by a review of the IAS's last 50 years of accomplishments and our path forward to the future.

IAS Chapters and Membership Overview - Products and Services - The presentation gives a short overview about the chapter and membership activities of the IEEE Industry Applications Society (IAS). Membership statistics demonstrate the actual status and the membership and chapter development trends. The higher grade and student membership development as well as its regional characteristics will be introduced, especially the young member activity and the student chapter development.

The second part of the presentation gives an overview about the member promoted programs and services of the Society. Not only the organization structure of CMD but its activity, the awards, contests, travel programs, technical supporting services will be introduced in details.

Electric Motor Drives and Control for Electric/Hybrid Vehicles - With ever-increasing concerns on our environment, there is a fast growing interest in electric vehicles (EVs) and hybrid EVs (HEVs) from automakers, governments, and customers. As electric motor drives are the core of both EVs and HEVs, it is a pressing need for researchers to develop advanced electric-drive systems. In this lecture, the development status of EVs/HEVs in China will be firstly introduced. The general requirement of traction motor drive for EV/HEVs is discussed. An overview of permanent-magnet (PM) brushless motor drives for EVs and HEVs is presented, with emphasis on machine topologies, drive operations, and control strategies. Then, major research directions of the permanent magnet brushless motor drive systems are elaborated, including the stator PM motor drive and fault-tolerant control, magnetic-geared outer-rotor PM motor drive, and the electric variable transmission (EVT) system.

Permanent Magnet Motor Vibration Noise Test and Simulation - the phenomenon of audible noise and vibrations due to magnetic forces in all types of rotating electrical machines (e.g. PMSM, SRM, IM), identify the root cause (e.g. winding, slotting, eccentricity, PWM) of a given vibration or acoustic noise,harmonic based on experimental data interpretation, analytical calculations or simulations, find some mechanical and electrical re-design solutions to mitigate a given harmonic once it has beenidentified,

Apart from the above topics, the use of IEEE standards and practices, the features and resources available for members from the Institute of Electrical and Electronic Engineers Inc. (IEEE) / Industry Application Society (IAS), the organization of local IEEE Chapters and its operation will also be included as an added interest.

The Speakers

David B. Durocher,Senior Member IEEE and presently serves as a member of the IEEE IAS Mining Industry Committee, Cement Industry Committee, Pulp & Paper Industry Committee and as President of the IEEE Industry Applications Society.

Dr. Peter Magyar, FIEEE, Advanced Development, Hella KGaA Hueck & Co., Germany.

Prof. Ming Cheng (M'01–SM'02–F'15) received the B.Sc. and M.Sc. degrees from the Department of Electrical Engineering, Southeast University (formerly Nanjing Institute of Technology), Nanjing, China, in 1982 and 1987, respectively, and the Ph.D. degree from the Department of Electrical and Electronic Engineering, the University

of Hong Kong, Hong Kong, in 2001, all in electrical engineering. Dr. Cheng was elevated to IEEE Fellow in 2014 for contributions to the development and control of stator permanent magnet machines for vehicular propulsion and wind power generation. He is also a fellow of The Institution of Engineering and Technology (IET).

Dr. Jean LE BENSNERAIS, Following a M.Sc. specialized in Applied Mathematics in 2005, Jean LE BESNERAIS made an industrial PhD thesis in Electrical Engineering at the L2EP laboratory of the Ecole Centrale de Lille, North of France, on the reduction of electromagnetic noise and vibrations in traction induction machines with ALSTOM Transport. He then worked from 2008 to 2013 as an R&D engineer in the railway and wind industries (ALSTOM, SIEMENS Wind Power, NENUPHAR Wind). In 2013, he founded EOMYS ENGINEERING, a company providing applied research and development services including modeling and simulation, scientific software development and experimental measurements. EOMYS has developed a strong expertise in the analysis and reduction of electromagnetically-induced acoustic noise and vibrations in electrical systems. This experience includes synchronous and inductionmachines from W to MW range, from 10 to 100 000 rpm, with inner or outer rotor. EOMYS also develops and distribute MANATEE software for the fast electromagnetic and vibroacoustic design of electrical machines.

Workshop Outline

Shanghai (18 October 2016):

	Topic	Speaker
8:30-9.00	Registration	
9.00-9.10	The host announced the official start of the meeting Shanghai university leadership delivering	
9.10-9:30	A look Forward in Energy Conversion Technologies following 50 Years of History in IEEE's Industry Applications Society	David B. Durocher, IAS President
9:30-9:50	IAS Chapters and Membership Overview - Products and Services	Dr.-Ing. Peter Magyar, IEEE Fellow IAS Chapters and CMD Chair
9:50~10:10	Coffee break	
10:10-10.30	For the Chinese manufacturing 2025 energy saving and new energy automobile electric system technology	Jun Gong
10:30~11:30	Electric Motor Drives and Control for Electric/Hybrid Vehicles	Prof. Ming Cheng, Ph.D., FIEEE, FIET
12:00~13:30	Lunch	
13:30-14:30	Permanent magnet motor vibration noise test and simulation	LE BESNERAIS Jean, Ph.D. Eng
14:30-15:00	Power Electronics Device and Its Application in EV	Prof Wen Xuhui
15:00~16.00	Electric cars, electric drive system whole industry chain technology innovation strategy alliance members report	
16.00~17.00	Technical Discussion	

Who Should Attend

This workshop is designed for:

- √ Power electronics researchers, Electrical
- √ vehicle researchers,
- √ Plant electrical engineers,
- √ Power Utility Engineers, Facility
- √ managers,
- √ Equipment manufacturers,
- √ Consultants,
- √ Product Development Researchers,
- √ University and College Lecturers,
- √ Students.

IEEE/IAS is providing financial support to these regional workshops to keep the registration fee at a low level for the benefit of IEEE members. Please enroll early. Places are strictly limited. Registration

Please contact the following persons for details of workshop enrolment.

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