



17-20 October 2019

Hotel Grand Hyatt, Kochi, Kerala

Technology, Knowledge, and Society

Call for Paper - Special Session on

Progressing Technology for Electric Vehicle Charging Systems and Management

Electric vehicles (EVs) transportation has become a progressive technology in the mainstream transportation solution. Since EVs are considered to be dynamic loads, managing the available grid or renewable supported electrical power to the EVs charging plug spot are involving various parameters. From the customer surveys and EV marketing specialists say that the key complications to the uptake of EVs are long driving range and battery recharge-time anxiety. Foremost drawback of EV is the opportunities to recharge the vehicle battery have become a difficult subject. A short coming of present's technology battery includes cost, size, weight, slower charging and low energy density. For example, Lithium-Ion complete battery pack energy density is around 100 Wh/kg. Wireless power transfer (WPT), which transmits power by an electromagnetic field across an intervening space, provides the prospect of new opportunities for electric vehicles (EVs) to enhance sustainable mobility.

However, either used plugged in charging or WPT, due to the high charging power demand the future power grid has a strong impact in their power management. Subsequently the uncertainty in the number, capacity, type and initial circumstances of EVs driving and user behaviors, the appropriate design of EV charging systems, and its management strategies are precarious. The integration of renewable energy resources (e.g., wind and solar) further obscures EV charging system management. A wide-ranging effort is compulsory to provide scalability, flexibility and autonomy in Electric vehicles charging systems in a static and dynamic environment. This Special Issue on "A Progressing Technology for Electric Vehicle Charging Systems and Management" is intended to motivate further research and development of future EV charging systems which covers the design and development of EV chargers, emerging power converter topologies, control technologies implementation, energy management strategies, and investigating the integration of the charging stations with renewable energy and energy storage.

We encourage all researchers working in this area to submit original research contribution with subjects not limited to:

- Novel Power Electronics converter topologies, including their control techniques. • Compact and flexible on-board chargers.
- EV chargers based on wireless power transfer.
- Intelligent EV fleet charging management.
- Optimization of energy management in fast charging stations.
- Analysis and modeling of power electronic converters for EV chargers.
- Digital controller architecture (microcontrollers, DSPs, and FPGAs) for EV charge / power management.
- Energy storage system integration with charging station.
- Charging station integration with renewable energy generation and storage systems.
- Vehicle-to-grid services
- Power quality management, analysis and control
- Predictive resilience analysis and Resilience driven system design
- Novel applications in electric vehicles, smart grid, energy-aware buildings, etc.

Special Session Organizer(s):

Dr. Bharatiraja Chokkalingam, IEEE Senior Member, Department of Electrical and Electronics Engineering, SRM Institute of Science and Technology, SRM Nagar, Tamil Nadu, India - 603203. E-mail: bharatiraja.c@ktr.srmuniv.ac.in.

Dr.Sanjeevikumar Padmanaban, IEEE Senior Member, Department of Energy Technology, Aalborg University, Esbjerg, Denmark. E-mail: san@et.aau.dk.

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Prof. Frede Blaabjerg, IEEE Fellow, Department of Energy Technology, Aalborg University, Aalborg, Denmark. E-mail: fbl@et.aau.dk

Dr.Atif Iqbal, IEEE Senior Member, Department of Electrical Engineering, Qatar University, Doha, Qatar. Atif Iqbal. E-mail: atif.iqbal@qu.edu.qa.

Important dates:

Full Paper Submission : **June 30, 2019**

Notification of acceptance : **August 15, 2019**

Final Camera ready Submission of Full Manuscript : **August 30, 2019**

Papers submitted for special sessions need to be peer-reviewed in the same way as submissions to the regular tracks. Papers should conform to the IEEE format and specifications. Authors are to be invited to submit a full paper (Maximum 6 pages, double- column US letter size) as PDF using the IEEE templates. Template and submission system is available on the conference website: <http://www.tencon2019.org/>.

Biographies of Special Session Organisers:



Bharatiraja Chokkalingam received the Bachelor of engineering in Electrical and Electronics Engineering from Kumaraguru College of Engineering, Coimbatore, India, in 2002 and the Master of engineering degree in Power Electronics Engineering from Government College of Technology, Coimbatore, India, in 2006. He received Ph.D. degree in Electrical engineering at SRM University, Chennai, India in 2015. He completed his 1st Postdoctoral Fellowship at Centre for Energy and Electric Power, Faculty of Engineering and the Built Environment, Tshwane University of technology, South Africa in 2016 with National Research Foundation funding. He was the award recipient of DST, Indo-U.S Bhaskara Advanced Solar Energy (BASE), at 2017 and through he completed his 2nd Postdoctoral Fellowship at Department of Electrical and Computer Engineering, Northeastern University, USA. He is a Visiting Researcher at University of South Africa. He is also an Award recipient of Young Scientists Fellowship Scheme (YSFS), Tamil Nadu State Council for Science and Technology at 2018. Bharatiraja has signed MoU with WallVisionBV, Netherland Company to Develop of Zigzag Solar for Indian operations. He is also be a consultant of TESCOM Electronics Bangalore, KCP solar INIDA etc., Dr.C.Bharatiraja is currently working as an Associate Professor at Department of Electrical and Electronics Engineering, SRM Institute of Science and Technology, Kattankulathur Campus, Chennai, India. He completed two funding project in the area of Electrical Vehicle charging station and currently he is working with IFC hydrogen train project. His research interest includes power electronics converter topologies, and controls for PV and EV applications, PWM techniques for power converters and adjustable speed drives, wireless power transfer and smart grid. He has authored more than 80 papers, which are published in international journal including IEEE transactions.



Dr. Sanjeevikumar Padmanaban (M'12–SM'15), received the bachelor's degree in electrical engineering from the University of Madras, India, 2002, the master's degree (Hons.) in electrical engineering from Pondicherry University, India, 2006, and the Ph.D. degree in electrical engineering from the University of Bologna, Italy, 2012. He served as an Associate Professor with VIT University from 2012 to 2013. Also, he served as the Faculty with the National Institute of Technology, Pondicherry in 2013. During 2014, he visited as invited research fellow to Qatar University, funded by Qatar National Research Foundation, also Lead Researcher, Dublin Institute of Technology, Ireland from March 2014 to September 2014. Further, he served as the Project Lead/Head Ohm Technologies, Chennai from September

2014 to September 2016. From October 2016 to February 2018, he served as Associate Professor with the Department of Electrical and Electronics Engineering, University of Johannesburg, South Africa. From March 2018, he is with the Department of Energy Technology, Aalborg University, Esbjerg, Denmark as faculty. He has authored 300 plus scientific papers and has received the Best Paper cum Most Excellence Research Paper Award from IET-SEISCON'13, IET-CEAT'16 and five best paper award from ETAEERE'16 sponsored Lecture note in Electrical Engineering, Springer book series. He is a fellow Institution of Engineers (FIE'18, India) and fellow Institution of Telecommunication and Electronics Engineers (FIETE'18, India). He serves as associate editor/editorial board member of IEEE Systems Journal, the IEEE Access Journal, the IET Power Electronics and Journal of Power Electronics, Korea. Editorial board/subject editor of the subject Editor of IET Renewable Power Generation, the subject Editor of IET Generation, Transmission and Distribution, the subject editor of FACTS journal, Canada and etc.



Jens Bo Holm-Nielsen currently works at the Department of Energy Technology, Aalborg University, and Head of the Esbjerg Energy Section. He has vast experience in the field of Bio-refinery concepts, Biogas production and Anaerobic Digestion. On his research activities, established advanced the Center for Bioenergy and Green Engineering in 2009, Esbjerg, Denmark and serve as the Head of the research group program. He has implemented large-scale projects in his field of research in Denmark with various provinces, European states, Canada, USA, China, and Eastern Africa regions. He has been serving as the technical expert member for many industries in his field. He has executed many large scale European Union and United Nation projects in the research aspects of Bioenergy, Bio-refinery processes, the full chain of biogas and Green Engineering. He has authored/coauthored more than 100 scientific papers in the peer reviewed journals and flag-off conferences. He serves on invitation with various capacities in several international conferences, and Organizer of international conferences, workshops and training programmes in Europe, Central Asia and China. His focus towards the “Renewable Energy - Sustainability - Green jobs for all”.

F.Blaabjerg (S'86–M'88–SM'97–F'03) was with ABB-Scandia, Randers, Denmark, from 1987 to 1988. From 1988 to 1992, he was a Ph.D. Student with Aalborg University, Aalborg, Denmark. He became an Assistant Professor in 1992, an Associate Professor in 1996, and a Full Professor of power electronics and drives in 1998. From 2017 he became a Villum Investigator. His current research interests include power electronics and its applications such as in wind turbines, PV systems, reliability, harmonics and adjustable speed drives. He has published more than 450 journal papers in the fields of power electronics and its applications. He is the co-author



of two monographs and editor of 6 books in power electronics and its applications. He has received 22 IEEE Prize Paper Awards, the IEEE PELS Distinguished Service Award in 2009, the EPE-PEMC Council Award in 2010, the IEEE William E. Newell Power Electronics Award 2014 and the VillumKann Rasmussen Research Award 2014. He was the Editor-in-Chief of the IEEE TRANSACTIONS ON POWER ELECTRONICS from 2006 to 2012. He has been Distinguished Lecturer for the IEEE Power Electronics Society from 2005 to 2007 and for the IEEE Industry Applications Society from 2010 to 2011 as well as 2017 to 2018.

He is nominated from 2014 to 2017 by Thomson Reuters to be between the most 250 cited researchers in Engineering in the world. In 2017 he became Honoris Causa at University Politehnica Timisoara (UPT), Romania.



A. Iqbal, Senior Member IEEE, PhD (UK), Fellow IE (India), Fellow IET (UK) - Associate Professor at Electrical Engineering, Qatar University and Former Full Professor at Electrical Engineering, Aligarh Muslim University (AMU), Aligarh, India. Recipient of Outstanding Faculty Merit Award AY 2014-2015 and Research excellence award at Qatar University, Doha, Qatar. He received his B.Sc. (Gold Medal) and M.Sc. Engineering (Electrical) degrees in 1991 and 1996, respectively, from the Aligarh Muslim University (AMU), Aligarh, India and PhD in 2006 from Liverpool John Moores

University, Liverpool, UK. He has been employed as a Lecturer in the Department of Electrical Engineering, AMU, Aligarh since 1991 where he served as Full Professor until Aug. 2016. He is recipient of MaulanaTufail Ahmad Gold Medal for standing first at B.Sc. Engg. Exams in 1991 from AMU. He has received best research papers awards at IEEE ICIT-2013 and IET-SESICON-2013. He has published widely in International Journals and Conferences his research findings related to Power Electronics and Renewable Energy Sources. Dr. Iqbal has authored/co-authored more than 270 research papers and one book and two chapters in two other books. He has supervised several large R&D projects. His principal area of research interest is Modeling and Simulation of Power Electronic Converters, Control of multi-phase motor drives and Renewable Energy sources. He is an Associate Editor of IEEE Transaction of Industrial Applications and Guest Associate Editor of IEEE Transaction of Power Electronics.