

# 2016 IEEE Nikola Tesla Award

*Sponsored by Wolong Electric Group Co., Ltd., the IEEE Industry Applications Society,  
and the IEEE Power & Energy Society*

## **Bruno Lequesne**

***For contributions to the design and analysis of actuators, sensors,  
and motors for automotive applications***



The patented work of Bruno Lequesne has driven advances leading to the realization of “more electric automobiles” that use electrical and electromechanical systems for improved fuel economy, reduced greenhouse emissions, and better safety. With innovations recognized by multiple awards from industry leaders such as Delphi and General Motors, Lequesne’s work on linear actuators provided closed form solutions to identify the best configurations for engine-valve motion or suspension. His work on encoders for brushless motors helped overcome torque ripple in electric power steering systems, contributing to a fuel-saving feature now standard in most vehicles. His camshaft and crankshaft position sensors for engine control help to reduce emissions, and his wheel speed sensors for anti-skid braking have made vehicles safer. He also developed one of the first induction belt-driven starter generators, which has enabled start-stop functionality to help eliminate idling losses in engines.

An IEEE Fellow, Lequesne is president of E-Motors Consulting, LLC, Menomonee Falls, WI, USA.

*Sponsored by the IEEE Power Electronics Society*

## **Johann W. Kolar**

***For contributions to the advancement of three-phase pulse-width modulation (PWM) converter systems and power electronics education***



A visionary leader in the field of power electronics, Johann W. Kolar has a distinguished record of providing industry with key innovations for ensuring high power quality and saving energy. He has driven advances in three-phase pulse-width modulation rectifier and matrix converter technology, including the Vienna Rectifier and the Sparse Matrix Converter, over the past three decades. Offering outstanding performance concerning efficiency, power density, harmonic distortions, and costs, the Vienna Rectifier is widely employed for power supply of data centers and industry processes, as well as actuators of more electric aircraft. Furthermore, Kolar

has spearheaded the introduction of multi-objective optimization as a fundamentally new research approach into power electronics and has proposed a revolutionary new approach for education in power electronics that is used today in academia and industry all over the world.

An IEEE Fellow, Kolar is a full professor and chair of the Power Electronic Systems Laboratory at ETH Zurich, Zurich, Switzerland.

# 2016 IEEE IAS Outstanding Achievement Award Recipient



## Seung-Ki Sul

Seung-Ki Sul (S'78, M'87, SM'98, F'00) was born in Korea, in 1958. He received the B.S., M.S., and Ph.D. degrees in electrical engineering from Seoul National University, Seoul, Korea, in 1980, 1983, and 1986, respectively. From 1986 to 1988, he was an Associate Researcher with the Department of Electrical and Computer Engineering, University of Wisconsin, Madison. From 1988 to 1990, he was a Principal Research Engineer with LG Industrial Systems Company, Korea. Since 1991, he has been a member of faculty of School of the Electrical and Computer Engineering, Seoul National University, where he is currently a Professor. He was promoted as a fellow of IEEE with the contribution to PWM technology. Prof. Sul is one of pioneers in the area of carrier based PWM technology applied to the control of the power converters. From 2005 to 2007, he was the Vice Dean of the Engineering College of Seoul National University. In addition, from 2008 to 2011, he was the President of the Electrical Engineering Science Research Institute funded by the Korean Government. He has over 140 IEEE journal papers and a total of more than 320 international conference papers in the area of power electronics. He was the program chair of IEEE PESC'06 and general chair of IEEE ECCE-Asia, ICPE, 2011. He has been actively involved in various industry projects sponsored by many Korean, Japanese, and American companies. For his sabbatical year from 2003 to 2004, he worked as an acting director of research center of Yaskawa Electric Company, Japan. From 1998 to 2003, he was a board member of Hyundai Elevator Co., which is the largest elevator maker in Korea. From 2011 to 2014, he was a board member of LS Industrial System Co., which is the largest power electronics related product maker in Korea. He holds 14 U.S.A patents, 7 Japanese patents, 11 Korean patents, and granted 42 Ph.Ds under his supervision. For last three years, he had served as Editor-in-Chief of the Journal of Power Electronics, which is a SCIE registered journal, published by the Korean Institute of Power Electronics (KIPE), Seoul, Korea. For 2015, he was the president of KIPE. He was recipient of 2015 IEEE Transaction 1st and 2nd paper awards on Industrial Application, simultaneously. His current research interests include power electronic control of electrical machines, electric/hybrid vehicles and ship drives, High Voltage DC transmission based on MMC, and power-converter circuits for renewal energy sources.



# 2016 IEEE PELS R. David Middlebrook Achievement Award Recipient



## Mark Dehong Xu

***For leadership and contributions to power electronics technology in renewable energy systems and energy efficiency.***

Mark Dehong Xu (M'94-SM'09-F'13) received Ph.D. degree from Zhejiang University, China, in 1989. He was a visiting professor in University of Tokyo from 1995 to 1996, and CPES in Virginia Tech in 2000 and Power Electronics Lab of ETH in Zurich in 2006 respectively. He became a full professor at Zhejiang University in 1996. He has made distinctive contributions to power electronics technology for renewable energy systems and energy efficiency. He has proposed Zero-Voltage-Switching Space Vector Modulation for 3-phase inverters, Weighted Average Current Control for damping control of the grid inverter, Phase-shift plus PWM control for bidirectional DC/DC converters etc. He has authored six books and more than 200 IEEE Journal or Conference papers. He holds more than 40 Chinese patents and 3 US patents. He received four IEEE journal or conference prize paper awards.

He was at-large Adcom member of IEEE PELS from 2006 to 2008. He was the General Chair of IEEE International Symposium on Industrial Electronics (ISIE2012, Hangzhou), IEEE International Symposium on Power Electronics for Distributed Generation Systems (PEDG2013, Arkansas), International IEEE Power Electronics and Applications Conference (PEAC2014, Shanghai) etc. He has been IEEE Fellow since 2013. Since 2013, he has been President of China Power Supply Society.

# IEEE IAS Industrial Power Conversion Systems Dept. Gerald Kliman Innovator Award Recipient



## Dr. Jih-Sheng (Jason) Lai

Jih-Sheng (Jason) Lai received M.S. and Ph.D. degrees in electrical engineering from the University of Tennessee, Knoxville, in 1985 and 1989. In 1989, he joined the Electric Power Research Institute (EPRI) Power Electronics Applications Center (PEAC). From 1993, he worked with the Oak Ridge National Laboratory as the Power Electronics Lead Scientist. He joined Virginia Tech in 1996. Currently he is James. S. Tucker Professor and Director of Future Energy Electronics Center (FEEC). He also holds International Chair Professorship at National

Taipei University of Technology, Taiwan and serves as a Visiting Professor at Nanyang Technological University, Singapore.

He published more than 360 refereed technical papers and 2 books and received 25 U.S. patents. He received Technical Achievement Award in Lockheed Martin Award Night; 2 Journal Paper Awards; 11 Best Paper Awards from IEEE sponsored conferences; Virginia Tech Dean's Award on Research Excellence.

He led the student teams to win Top Three Finalist in Google Little Box Challenge in 2016; Grand Prize Award from International Future Energy Challenge (IFEC) in 2011; Grand Prize Award in Texas Instruments' Engibous Analog Design Competition in 2009;

Dr. Lai is an IEEE Fellow. He is the founding chair of the 2001 IEEE Future Energy Challenge (FEC) and 2016 IEEE Asian Conference on Energy, Power, and Transportation Electrification (ACEPT); the General Chairs of IEEE Workshop on Computers in Power Electronics (COMPEL 2000) and IEEE Applied Power Electronics Conference and Exposition (APEC 2005).

# 2016 Richard M. Bass Outstanding Young Power Electronics Engineer Award Recipient



## Huai Wang

***For his contribution to the reliability of power electronic conversion systems.***

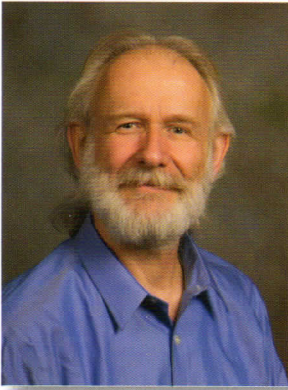
Huai Wang was born in Huanggang, China, in 1985. He received his PhD degree from the City University of Hong Kong, Hong Kong, China, in 2012, and B. E. degree from Huazhong University of Science and Technology, Wuhan, China, in 2007. He joined the Center of Reliable Power Electronics (CORPE), Aalborg University, Denmark, in 2012, where he is currently an Associate Professor.

He has worked as a short-term Visiting Scientist at MIT, USA, and ETH Zurich, Switzerland, during 2013 and 2014, respectively, and studied abroad at ABB Corporate Research Center, Switzerland, in 2009.

Dr. Wang's research addresses the fundamental challenges in modeling and validation of the failure mechanisms of active and passive power electronic components, and application issues in system-level predictability, robustness design, and circuit architecture. He has contributed the first few concept papers in the area of power electronics reliability, and filed several patents in capacitive DC-link inventions. In the above area, he has initiated new multi-disciplinary courses, co-edited a book, and given conference tutorials and invited talks. Dr. Wang received the Green Talents award from German Federal Ministry of Education and Research in 2014. He has been an Associate Editor of IEEE Transactions on Power Electronics since 2015.



# 2016 IEEE PELS Harry A. Owen, Jr. Distinguished Service Award Recipient



## Dushan Boroyevich

American Electric Power Professor  
Bradley Department of Electrical and Computer  
Engineering  
Center for Power Electronics Systems (CPES)  
Virginia Tech, Blacksburg, Virginia, U.S.A.

***For distinguished volunteer service, vision, and leadership in guiding the global expansion of the Power Electronics Society and for his skills as a unique communicator, society advocate, mentor and scientist.***

Dushan Boroyevich received his Dipl. Ing. degree from the University of Belgrade in 1976 and his M.S. degree from the University of Novi Sad in 1982, in what then used to be Yugoslavia. He received his Ph.D. degree in 1986 from Virginia Polytechnic Institute and State University (Virginia Tech), Blacksburg, USA.

From 1986 to 1990, he was an assistant professor and director of the Power and Industrial Electronics Research Program in the Institute for Power and Electronic Engineering at the University of Novi Sad. He then joined the Bradley Department of Electrical and Computer Engineering at Virginia Tech as associate professor. He is now American Electric Power Professor at the department and co-director of the Center for Power Electronics Systems (CPES). He was the president of the IEEE Power Electronics Society for 2011-12. Prof. Boroyevich is a Fellow of IEEE, a recipient of the IEEE William E. Newell Power Electronics Technical Field Award, and a member of the US National Academy of Engineering.

Dushan's research interests include multi-phase power conversion, electronic power distribution systems, power electronics systems modeling and control, and multi-disciplinary design optimization.

# IEEE Fellows Elevated as of January 2016

## ACCEPTING AT ECCE 2016 IEEE FELLOWS ELEVATED BY PELS 2016



**Vassilios Agelidis**

*For contributions to power electronics, renewable energy conversion and integration with electricity grid*



**Henry Chung**

*For contributions to power electronic converters for lighting*



**Yungtaek Jang**

*For contributions to efficiency optimization of ac-dc power supplies*



**Tsorng-Juu Liang**

*For contributions to power conversion for lighting and sustainable energy*



**Xinbo Ruan**

*For contributions to switching-mode power converter topologies and modulation strategies*



# IEEE Fellows Elevated as of January 2016

## IEEE FELLOWS ELEVATED BY IAS 2016

### Mark Horenstein

*For contributions to the modeling and measurements of electrostatics in industrial processes*

### Sheldon Kennedy

*For leadership in the technology and standards for rectifier, inverter and harmonic-mitigating transformers*

### Blake Lloyd

*For development of non-intrusive diagnostics for electrical motors and generators*

### Annette Muetze

*For contributions to the analysis and mitigation of bearing currents in variable-speed drives*