

# Annual Conference of the IEEE Industrial Electronics Society (IECON 2021)

## Special Session on

### “Emerging Techniques in Design, Optimization and Testing of Traction Electric Machines for Electrified Transportation”

#### Organized by

Principal Organizer: Dr. Wenlong Li (wlli@uwindsor.ca)  
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## Call for Papers

Theme: In a world where the environmental protection and energy conservation are of growing concerns, the development of electrified transportation has taken on an accelerated pace. The high-performance electric vehicles require traction electric machines exhibiting high efficiency, reliability, thermal and structural performance. Novel materials, designs, manufacturing and innovative testing methods are required to be investigated in order to resolve the concerns associated with the development of next-generation electric machines for electric vehicle applications. This special session aims to inspire the most recent innovations and advancements in design, modeling, optimization, manufacturing and testing techniques of traction electric machines to support a sustainable electrified transportation system.

Topics of interest on traction electric machine research include, but are not limited to:

- New and innovative materials
- Electromagnetic design and optimization
- Multi-physics design and optimization
- Novel topologies
- Thermal and cooling design
- Noise, vibration and harshness (NVH)
- Innovative manufacturing technologies
- Advanced testing techniques

**Submissions Procedure:** All the instructions for paper submission are included in the conference website: <https://attend.ieee.org/ieecon-2021/>

### Deadlines:

Full paper submission: June 25, 2021  
Paper acceptance notification: July 30, 2021  
Camera-ready paper submission: Aug. 27, 2021

### Organizer Biographies:



**Wenlong Li** (M'13–SM'15) received his B. Eng degree from Sichuan University, China in 2005, M. Eng degree from University of Science and Technology of China, China in 2008, and Ph. D degree from The University of Hong Kong, Hong Kong, China in 2012, respectively.

He is currently a Visiting Scholar at University of Windsor, Windsor, ON, Canada. His research interests include electrical machine design, analysis and applications, with special interests for the areas of renewable energy systems and electromobility. He has published over 70 peer-viewed technical papers and 3 invited book chapters.



**Mohammad Sedigh Toulabi** (S'13–M'16–SM'19) received the B.Sc. degree from K. N. Toosi University of Technology, Iran; the M.Sc. degree from Shahid Beheshti University, Iran; and the Ph.D. degree from the University of Alberta, Canada, in 2007, 2009, and 2016, respectively. He is currently an Assistant Professor and Deputy Director of Center for Hybrid Automotive Research and Green Energy (CHARGE) Lab at the Department of Electrical and Computer Engineering of the University of Windsor, Canada. He was an electrified powertrain lead engineer at Fiat

Chrysler Automobiles US LLC, USA from 2019 to 2020 and a senior research associate at the University of Manitoba, Canada from 2016 to 2019. His research interests include design, control and testing of electric machines and power electronics for transportation electrification.



**Jimi Tjong** received the Ph.D. degree in Mechanical Engineering from the University of Windsor, Canada, and has been with Ford Motor Company for over 30 years.

Dr. Tjong is the Technical Leader and Manager of the Powertrain Engineering, Research and Development Centre (PERDC) at Ford Motor Company in Canada. The Centre is currently the hub for Engineering, Research and Development that involved Canadian Universities, Government Laboratories, Canadian automotive parts and equipment suppliers. His research areas include internal combustion engines, battery, electric motors, and electrified vehicles. Dr. Tjong is the recipient of the 2020 Society of Chemical Industry Canada's International Award for his pioneering and innovative ideas, vision and leadership in making the global transportation value chain greener and sustainable.



**Narayan C. Kar** (SM'07) received the B.Sc. degree in Electrical Engineering from Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, in 1992 and the M.Sc. and Ph.D. degrees in electrical engineering from Kitami Institute of Technology, Hokkaido, Japan, in 1997 and 2000, respectively.

He is currently a professor in the Electrical and Computer Engineering Department at the University of Windsor, Canada where he is also the Tier 1 Canada Research Chair in Electrified Vehicles. Dr. Kar is the founder and director of the CHARGE Lab at the U. of Windsor. His research focuses on the design, control and advanced testing of electric machines and drives for electric vehicle applications. His research program is funded by the Government of Canada, automotive OEM and tier 1 automotive part suppliers.