

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

## Special Session on

### “Recent advances of current source converters for motor drives and renewable energy applications”

#### Organized by

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## Call for Papers

**Theme:** Most of the recent research work propose and analyze different solutions for the Voltage source inverters. Its success is due to its wide availability, high efficiency, and simplicity. Low efficiency is one of the main aspects that pushed the Current source inverters in backseat in the power conversion world. However, now thanks to easy availability of wide band gap devices, the current source topologies are again in the spotlight. With respect to the past (High power motor Drive and PV applications), other possible applications can be taken into consideration for that topologies: aerospace, automotive, naval, etc. This Special Issues intend to collect papers dealing with control design, common mode current reduction, reliability consideration and comparison with Voltage source in different applications. Original research, State of art analysis and surveys are welcome.

Topics of interest include, but are not limited to:

- Design, modeling, and analysis a methodology for Ground leakage current reduction
- Modeling and analysis of control strategy for High-Speed Motor Drive Application
- Wide-bandgap powered Current Source Inverters for magnetic component optimization
- Design, modeling, and analysis of alternative topologies scheme
- Renewable energy applications of current source inverters

## **IES Technical Committee Sponsoring the Special Session:**

This special session is sponsored by the IES Technical Committee on Renewable Energy Systems.

### **Brief Biography of the SS Organizers**

GIOVANNI MIGLIAZZA received the master's degree in mechatronic engineering and the Ph.D. degree in industrial innovation engineering from the University of Modena and Reggio Emilia, Modena, Italy, in 2014 and 2020, respectively. He is currently a Senior Research Fellow with the University of Modena and Reggio Emilia. He worked also as Senior Research Fellow with the University of Nottingham Ningbo China. He has authored or coauthored more than fifteen scientific papers and has received one industrial patent. His research interests include power electronics, converters, and electric drives.

He is currently a member of the IEEE-IES Technical Committee on Renewable Energy Systems. He constantly serves the scientific community as a reviewer for several journals and conferences.

GIAMPAOLO BUTICCHI (S'10-M'13-SM'17) received the Master degree in Electronic Engineering in 2009 and the Ph.D degree in Information Technologies in 2013 from the University of Parma, Italy. In 2012 he was visiting researcher at The University of Nottingham, UK. Between 2014 and 2017, he was a post-doctoral researcher, and Guest Professor at the University of Kiel, Germany. During his stay in Germany, he was awarded with the Von Humboldt Post-Doctoral Fellowship to carry out research related to fault tolerant topologies of smart transformers. In 2017 he was appointed as Associate Professor in Electrical Engineering at The University of Nottingham Ningbo China and as Head of Power Electronics of the Nottingham Electrification Center. He was promoted to Professor in 2020. His research focuses on power electronics for renewable energy systems, smart transformer fed micro-grids and dc grids for the More Electric Aircraft. Dr. Buticchi is one of the advocates for DC distribution systems and multi-port power electronics onboard the future aircraft. He is author/co-author of more than 230 scientific papers, an Associate Editor of the IEEE Transactions on Industrial Electronics, the IEEE Transactions on Transportation Electrification and the IEEE Open Journal of the Industrial Electronics Society. He is currently the Chair of the IEEE-IES Technical Committee on Renewable Energy Systems and the IES Energy Cluster Delegate."

ZHI-XIANG ZOU received the B.Eng. and Ph.D. degrees in electrical and engineering from Southeast University, Nanjing, China, in 2007 and 2014, respectively, and the Dr.-Ing. degree (summa cum laude) from the University of Kiel, Germany., He was an Engineer with the State Grid Electric Power Research Institute, Nanjing, from 2007 to 2009. He was a Research Fellow and a Lecturer with the Chair of Power Electronics, University of Kiel, from 2014 to 2019. He is currently an Associate Professor with the School of Electrical Engineering, Southeast University. His research interests include smart transformers, microgrid stability, and modeling and control of power converters. He serves as an Associate Editor for the IEEE Open Journal of Power Electronics and IEEE Access. He also serves as an Editor for the International Transactions on Electrical Energy Systems and Mathematical Problems in Engineering.