

THE 28<sup>TH</sup>  
IEEE INTERNATIONAL SYMPOSIUM ON  
INDUSTRIAL ELECTRONICS  
IEEE-ISIE 2019  
12-15 JUNE 2019, VANCOUVER, CANADA

Special Session on

“Z-Source Converters; Topologies, Modulation and Control Strategies, and their Applications”

Organized by

Principal Organizer(s): (Names with email address and affiliation)

**Prof. Ebrahim Babaei**, University of Tabriz, Iran E-mail: [e-babaei@tabrizu.ac.ir](mailto:e-babaei@tabrizu.ac.ir)

**Prof. Kai Sun**, Tsinghua University, China, E-mail: [sun-kai@mail.tsinghua.edu.cn](mailto:sun-kai@mail.tsinghua.edu.cn)

Organizer 10



**Prof. Ebrahim Babaei**

[e-babaei@tabrizu.ac.ir](mailto:e-babaei@tabrizu.ac.ir)

Faculty of Electrical and Computer Engineering,

University of Tabriz,

Tabriz, Iran.

IEEE Member: 90746876

**Ebrahim Babaei (M'10, SM'16)** received the Ph.D. degree in Electrical Engineering from University of Tabriz, in 2007. In 2007, he joined the Faculty of Electrical and Computer Engineering, University of Tabriz. He has been Professor since 2015. He is the author and co-author of more than 460 journal and conference papers. He also holds 23 patents in the area of power electronics. His current research interests include the analysis, modelling, design, and control of Power Electronic Converters and their applications, Renewable Energy Sources, and FACTS Devices.

Prof. Babaei has been the Editor-in-Chief of the Journal of Electrical Engineering of the University of Tabriz, since 2013. He is also currently an Associate Editor of the IEEE Transactions on

Industrial Electronics and IEEE Transactions on Power Electronics. He has been the Corresponding Guest Editor for different special issues in the IEEE Transactions on Industrial Electronics. In addition, Prof. Babaei has been the Track Chair, organizer of different special sessions and Technical Committee member in most important international conferences organized in the field of Power Electronics. Several times, he was the recipient of the Best Researcher Award from the University of Tabriz. Prof. Babaei has been included in the Top One Percent of the World's Scientists and Academics according to Thomson Reuters' list in 2015, 2016 and 2017. Prof. Babaei is a Member of IEEE Industrial Electronics Society and IEEE Power Electronics Society. His membership number is 90746876.

*Organizer 2:*



**Prof. Kai Sun**

[sun-kai@mail.tsinghua.edu.cn](mailto:sun-kai@mail.tsinghua.edu.cn)

Department of Electrical Engineering,  
Tsinghua University,  
Beijing, China.

IEEE Member: 80587755

**Kai Sun (M'12-SM'16)** received the B.E., M.E., and Ph.D. degrees in electrical engineering from Tsinghua University, Beijing, China, in 2000, 2002, and 2006, respectively.

He joined the faculty of Electrical Engineering, Tsinghua University, in 2006, where he is currently an Associate Professor. From Sep 2009 to Aug 2010, he was a Visiting Scholar at Department of Energy Technology, Aalborg University, Aalborg, Denmark. From Jan to Aug 2017, he was a Visiting Professor at Department of Electrical and Computer Engineering, University of Alberta, Edmonton, Canada. His current research interests include power electronics for renewable generation systems, microgrids, and energy internet.

Dr. Sun is a member of IEEE Power Electronics Society Sustainable Energy Systems Technical Committee, a member of IEEE Power Electronics Society Power and Control Core Technologies Committee, and a member of IEEE Industrial Electronics Society Renewable Energy Systems Technical Committee. Dr. Sun serves as an Associate Editor for IEEE Transactions on Power Electronics, IEEE Journal of Emerging and Selected Topics in Power Electronics, and Journal of Power Electronics. Dr. Sun served as the TPC Vice Chair of IEEE ECCE2017 and IEEE ECCE-Asia2017. He also served as the General Co-Chair of 2018 International Future Energy Challenge (IFEC2018). He was a recipient of Delta Young Scholar Award in 2013, and Youth Award of China Power Supply Society (CPSS) in 2017.

## Call for Papers

Theme: (100 words)

**Z-SOURCE CONVERTERS** provide efficient means for electric power conversion (dc–dc, dc–ac, ac–dc, ac–ac) between source and load in a wide range of applications. Z-source converters have been experiencing, in terms of research and applications, a constant growth during the last 15 years. The efforts of research have led to a rapid development of different Z-source converter topologies, modulation techniques, and control strategies. Nevertheless, many interesting aspects, such as efficiency improvement, optimized parameters, and new applications, still require more investigation. We encourage all researchers working in this area to submit papers to this Special Session.

Topics of interest include, but are not limited to:

### A list of 5-10 special areas

- ✓ *New Z-source converter topologies;*
- ✓ *Z-source based (dc-dc, dc-ac, ac-dc, matrix, multilevel, ...) converters;*
- ✓ *New modulation and control strategies for Z-Source converters;*
- ✓ *Industrial applications of Z-Source converters;*
- ✓ *Z-Source converters for renewable energy applications;*
- ✓ *Z-Source converters for electric vehicles and motor drives applications;*
- ✓ *Parameters optimization;*
- ✓ *Loss analysis and losses minimization methods;*
- ✓ *Reliability issues;*
- ✓ *Review and challenges on Z-Source converters.*