The 46th Annual Conference of the IEEE Industrial Electronics Society

October 18-21, 2020, Marina Bay Sands Expo and Convention Centre Singapore

Special Session on

"The Latest Advances and Emerging Applications of Modular Multilevel Converters"

Organized by

- **Dr. Jinyu Wang**,
  Nanyang Technological University, Singapore
  email: wangjy@ntu.edu.sg

- **Prof. Fujin Deng**,
  Southeast University, China
  email: fdeng@seu.edu.cn

- **Prof. Shunfeng Yang,**
  Southwest Jiaotong University, China
  email: syang@swjtu.edu.cn

- **Dr. Binbin Li**,
  Harbin Institute of Technology, China
  email: libinbin@hit.edu.cn

- **Dr. Sixing Du,**
  Xi'an Jiaotong University, China
  email: dusixing.2011@xjtu.edu.cn

Call for Papers

Due to their attractive features, e.g. modular structure, flexible scalability, low semiconductor stresses, high efficiency, superior waveform quality, as well as enhanced reliability, etc., modular multilevel converters (MMCs) have been widely employed in high voltage DC (HVDC) transmission systems. Besides, they have expanded to other applications, such as flexible AC transmission systems (FACTS), high-power motor drives, static synchronous compensator (STATCOM), energy storage systems and power electronic transformers, etc. Despite all these distinctive advantages and the wide potential application prospect, MMCs demand more complicated modeling and analysis techniques as well as sophisticated control systems because, compared with traditional voltage source converters (VSCs), they possess a more complex structure and have to manage multiple control objectives simultaneously. Furthermore, possible issues must be identified and solved when they are employed in emerging applications. These challenges have been the main reason for recent and ongoing research.

Topics of the Session:

This special session aims to provide a forum for discussion that will attract scholars and industry practitioners for sharing and discussing the latest advances in this scientific field. Topics in this session include, but are not limited to:

- Advanced topology variations of MMCs
- Circuit/component parameters selection and optimization
- Efficiency improvement and losses balancing techniques for MMCs
- Advanced analysis and modelling techniques for MMCs
- Advanced modulation and control techniques of MMCs
- Fault analysis and tolerant operation of MMCs
- Integration of new power devices in MMCs
- Grid support techniques with MMCs
- Integration of renewable energy and energy storage with MMCs
- Applications in HVDC, MTDC, FACTS, motor drives, power electronic transformers, smart grid, etc.