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

Special Session on

"Multilevel and High Power Density (AC/DC, DC/AC, DC/DC) Converter: Topology selection, Design, Control and Applications"

Organized by

Principal Organizer: Abhijit Choudhury (abhijit.choudhury.uz@hitachi.com)
Affiliation: Researcher, Electrification, Hitachi Ltd., Japan.

Organizer 1: Sandeep Anand (sa@ee.iitb.ac.in)
Affiliation: Associate Professor, Indian Institute of Technology, Bombay, India

Organizer 2: Apparao Dekka (dapparao@ieee.org)
Affiliation: Assistant Professor, Lakehead University, Ontario, Canada

Theme:

Due to the rapid growth of renewable energy integration in our power network; energy efficient, redundant, high power density converter design and their control for medium and low voltage applications are of great importance. Some of the application areas include solar PV, traction, data centre, mass-scale EV chargers and DC micro grid etc. This special session will mainly focus on the multilevel, redundant, high frequency power converter design challenges, topology selection and their control strategies. This will include AC/DC, DC/DC and AC/DC power converter based topologies and their control. Moreover, high frequency transformer design and associated challenges will also be included.

Topics of interest include, but are not limited to:

- Novel multilevel power converter topologies for MV applications (Including DC micro grid)
- SiC device based power converter
- High power density and redundant power converter design topologies
- Multiport EV charger configuration and their control
- DC circuit breaker
- Gate driver design and challenges for high frequency MV converters
- High frequency transformer and inductor design for MV applications
- Leakage current and safety aspect in MV converter

Good quality papers may be considered for publication in the IEEE Trans. on Industrial Electronics, subject to further rounds of review.

- Power converters for MV motor drives
- System control under grid instability

The sponsoring IES Technical Committee(s): IES technical committee on transportation electrification.