

Special Session on

**“Advanced Multilevel Converters with DC Capacitors: Topology, Modulation,
Voltage Balancing, and Control Strategies”**

Organized by

- **Mohamed Trabelsi,**
Kuwait College of Science and Technology
email: m.trabelsi@kcst.edu.kw
- **Hani Vahedi,**
Ossiaco Inc, Montreal, Canada
email: hani.vahedi@ieee.org
- **Hamza Makhamreh,**
IEEE IES member
email: hamzamasri7@gmail.com

Call for Papers

Multilevel converters have received significant attention for improved power quality. Moreover, replacing isolated DC sources with voltage-controlled capacitors makes this technology much more appealing for the industries due to reduced cost and size. Designing auxiliary circuit to make necessary paths for capacitors' currents has been investigated. However, advanced balancing techniques with interesting feature of redundant switching states are preferred to generate same voltage level, using different current paths, and balance the capacitors voltages without requiring external controllers. Thus, the voltage balancing of the DC capacitors in Multilevel Converters is a matter of importance especially in rectifiers and grid-connected inverter applications such as battery chargers, active filters, STATCOM, DVR, etc.

Topics of the Session:

Topics of the Session include, but are not limited to:

- Innovative capacitors based Multilevel Inverter topologies
- Novel Multilevel Rectifier Topologies with Voltage Balancing Techniques
- Emerging modulation techniques for Voltage Balancing of auxiliary Capacitors in Multilevel Converters
- Advanced controllers for Voltage Balancing of auxiliary Capacitors in Multilevel Converters
- Auxiliary circuits for voltage balancing of capacitors in multilevel converters
- New Applications of Multilevel Converters
- Emerging Multilevel Converters for Electrified Transportations
- Recent advances on Multilevel Converters for Renewable Energies Integration
- Voltage/Current decoupling techniques for Multilevel Converter control