

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

Special Session on

“Advanced Topologies and Control Methods for Multiport Power Converters”

Organized by

Principal Organizer: Mokhtar Aly (mokhtar.aly@aswu.edu.eg)

Affiliation: Aswan University, Aswan, Egypt

Background: Multilevel inverters, fault tolerant control, model predictive control, multi-input power converters, renewable energy applications, grid-connected inverters.

Organizer 2: Samir Kouro (samir.kouro@usm.cl)

Affiliation: Universidad Técnica Federico Santa María, Valparaiso, Chile

Background: Power Electronics, Renewable Energy Conversion Systems

Organizer 3: Jose Rodriguez (jose.rodriguez@unab.cl)

Affiliation: Universidad Andres Bello, Santiago, Chile

Background: Power electronics, multilevel converters, model predictive control, renewable energy, industrial electronics

Organizer 4: Emad M. Ahmed (emad@eng.aswu.edu.eg)

Affiliation: College of Engineering, Jouf University, Sakaka, Saudi Arabia

Background: Power electronic converters, multilevel inverter applications, modulation methods, multi-input power converter, power quality, renewable energy applications

Call for Papers

Recently, different energy sources and energy storage systems are integrated together so as to maintain suitable energy supply for connected loads and to maximize the power extraction from renewable energy sources. Power electronic converter topologies and control methods represent the most critical elements for efficient, reliable and cost-effective operation in addition to grid integration of hybrid systems. The most critical factors for the design and selection of converter topologies are the number of components, efficiency, reliability, cost, etc. In addition, the fast reference tracking, zero steady-state error, simultaneous control of multiple objectives, control implementation complexity, and computational burdens, are the most important criteria for the control design. In addition, efficient modulation techniques are highly required to achieve enhanced performance of multi-input power converters. This special session aims to concentrate on the latest developments and allow researchers to discuss and share experiences to advance this technology.

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

Topics of interest include, but are not limited to:

- Recent advances of power converter topologies for multi-input sources applications.
- Emerging control methods for grid-tied multi-input power converters, including model predictive control, sliding mode control and flatness-based control methods.
- Modulation techniques for multi-input power converters.
- New multilevel inverter topologies for multi-input sources applications.
- Leakage current reduction solutions for photovoltaic based multi-input power inverters.
- Wide bandgap semiconductors-based multi-input power converters.
- Lifetime extension-oriented control and modulation methods for multi-input converters.
- Fault tolerant topologies and control methods.

Submissions Procedure: All the instructions for paper submission are included in the conference website: <https://attend.ieee.org/iecon-2021/>

Deadlines:

Full paper submission:	June 25, 2021
Paper acceptance notification:	July 30, 2021
Camera-ready paper submission:	Aug. 27, 2021