

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

Special Session on

“High Power Multilevel Converters: Topologies, Combination of Converters, Modulation and Control”

Organized by

Principal Organizer: Alain Sanchez-Ruiz (alain.sanchez@ingetteam.com)

Affiliation: Ingeteam R&D Europe

Organizer 1: Iosu Marzo (imarzo@mondragon.edu) Affiliation: University of Mondragon

Organizer 2: Salvador Ceballos (salvador.cebillos@tecnalia.com) Affiliation: Basque Research and Technology Alliance (BRTA) - Tecnalia

Organizer 3: Gonzalo Abad (gabad@mondragon.edu) Affiliation: University of Mondragon



Alain Sanchez-Ruiz (SM'20) received the B.Sc. degree in electronics engineering, the M.Sc. degree in automatics and industrial electronics, and the Ph.D. degree in electrical engineering from the University of Mondragon, Mondragon, Spain, in 2006, 2009, and 2014, respectively.

He joined Ingeteam R&D Europe, Zamudio, Spain, in May 2014, where he is currently an R&D Engineer. Since January 2017, he has also been a Lecturer with the University of the Basque Country (UPV/EHU), Bilbao, Spain. From February 2012 to May 2012 he was a Visiting Researcher at the University of Tennessee, Knoxville, TN, USA. His current research interests include modelling, modulation and control of power converters, multilevel topologies, advanced modulation techniques, high-power motor drives and grid-tied converters.



Iosu Marzo was born in Bergara, Spain, in 1995. He received the B.S. degree in Renewable Energies Engineering, and the M.S. degree in the Integration of Renewable Energies into the Power Grid, both from the University of the Basque Country (UPV/EHU), Spain, in 2017 and 2018, respectively.

Since 2018, he has been with the Electronics and Computer Science Department at the University of Mondragon, Mondragon, Spain, researching in the area of Power Electronics

in collaboration with Ingeteam R&D Europe, Zamudio, Spain. He is currently working toward the Ph.D. project about the use of modular multilevel converters in STATCOM applications. His main research interests include multilevel topologies, modular multilevel cascaded converters, control of power converters, and renewable power generation systems.

Salvador Ceballos received the M.S. degree in physics from the University of Cantabria, Santander, Spain, in 2001, and the M.S. and Ph.D. degrees in electronic engineering from the University of the Basque Country, Bilbao, Spain, in 2002 and 2008, respectively.



Since 2002 he has been with Tecnalía Research and Innovation, where he is a Principal Researcher in the Energy and Environment Division. From January 2020 he is in a sabbatical and has joined the Energy Research Institute, Nanyang Technological Institute (ERI@N), Singapore as a Principal Research Fellow. He has authored more than 140 published technical papers. His research interests include multilevel converters, fault-tolerant power electronic topologies, renewables and power systems with high penetration of power converters.

Gonzalo Abad (M'07) received a degree in Electrical Engineering from the University of Mondragón, Spain, in 2000, the M.Sc. degree in Advanced Control from the University of Manchester, U.K., in 2001 and the Ph.D. degree in Electrical engineering from the University of Mondragón, Spain, in 2008. He joined the Electronics Department of the University of Mondragón, in 2001 and is currently an Associate Professor. His main research interests include renewable energies, power conversion and motor drives. He has published several papers in the areas of wind power generation, multilevel power converters and direct torque control of AC drives. He has participated in different industrial projects related to these fields.



Call for Papers

Theme:

The continuous increase in the demanded power capacity has made the two-level converter impractical in many applications. In order to increase the power rating, two main approaches are usually adopted: i) the use of multilevel power

converters and/or ii) the combination of several converters with simpler structure to achieve higher power levels. These two alternatives, sometimes combined together, open a big scope of challenges to be overcome, mainly related to the inherent dc-link capacitor voltage control, the synthesis of multilevel voltage waveforms with relatively low switching frequency techniques or the optimal combination of Power Electronics Building Blocks to achieve higher power levels and improved output voltage and current quality.

Topics of interest include, but are not limited to:

- New applications for multilevel converters.
- New advances in existing applications: StatComs, Active Power Filters, HVDC, MVDC links, Wind Turbines, Pump Storage Power Plants, Traction, Variable Speed Drives, etc.
- Power capability increasing techniques and combinations of power electronics building blocks.
- New multilevel converter topologies.
- Advanced modulation techniques.
- Advanced multilevel converter controls.
- Design of hardware-modulation solutions to increase the power quality.

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