



Call for Papers

IEEE Journal of Emerging and Selected Topics in Power Electronics

Special Issue on Complex Vector Theory and its Application in Power Electronic Systems

Scheduled Publication Time: March 2020

Space vectors have long been utilized for modeling and control of ac drives and power electronic systems. The special case of a balanced three-phase system allows representation using complex space vectors and complex-coefficient transfer functions. A single-input single-output notation is facilitated, greatly simplifying modeling and analysis. Complex-valued system modeling is useful for the design and analysis of current controllers for voltage-source converters (VSCs) in grid-connected and drives applications. Other emerging applications include digital complex-valued filters for grid synchronization and for extraction of symmetric components.

However, many three-phase dynamic systems are not balanced, such as salient-pole synchronous machines and – of increasing importance – grid-connected VSCs. There are ways of extending complex-valued system models to imbalanced systems, e.g., transfer function matrices for characterizing the frequency-coupling dynamics of imbalanced three-phase dynamic systems.

This Special Issue is devoted to the latest developments and applications of modeling, analysis, and control of power electronic systems using *complex vector theory and its extension*. Prospective authors are invited to submit original contributions, survey papers, or tutorials, for review for publication in this Special Issue. Topics of interest include, but are not limited to:

- Converter control design and analysis
- Converter–grid interaction
- Signal processing in power electronics and drives
- Multiple frequency control
- Model reduction
- Grid synchronization
- Conventional machines and drives
- Multiphase machines and drives
- Representation of single-phase systems

All manuscripts must be submitted through Manuscript Central at <http://mc.manuscriptcentral.com/jestpe-ieee>. Submissions must be clearly marked “**Special Issue on Complex Vector Theory and its Application in Power Electronic Systems**” on the cover page. When uploading your paper, please select your manuscript type “Special Issue.” Refer to <http://www.pels.org> for general information about electronic submission through Manuscript Central. Manuscripts submitted for the special issue will be reviewed separately and will be handled by the guest editorial board noted below.

Deadline for Submission of Manuscript: **June 30, 2019**

Guest Editors: Lennart Harnefors, ABB Corporate Research, Sweden (lennart.harnefors@se.abb.com)

Xiongfei Wang, Aalborg University, Denmark (xwa@et.aau.dk)

Guest Associate Editors:

- Marc Bodson University of Utah, USA
- Massimo Bongiorno Chalmers University of Technology, Sweden
- Fernando Briz University of Oviedo, Spain
- Rolando Burgos Virginia Tech, USA
- Jinjun Liu Xi’an Jiaotong University, China
- Paolo Mattavelli University of Padova, Italy
- Jorge Solsona Universidad Nacional del Sur, Argentina
- Pericle Zanchetta Nottingham University, UK

Proposed Timeline:

- February 28, 2019 – Call for Papers to IEEE JESTPE Editorial Office and Newsletter
- June 30, 2019 – Manuscripts Submission Deadline
- October 30, 2019 – Revised manuscripts Submission Deadline
- November 30, 2019 – Final Acceptance Notification
- January 15, 2020 – Manuscripts Forwarded to IEEE for Publication
- March, 2020 – Special Issue Appears in IEEE JESTPE