



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

Multiple frequency control

- Signal processing in power electronics and drives
- Grid synchronization
- Conventional machines and drives
- Multiphase machines and drives
- Representation of single-phase systems

Model reduction

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: May 31, 2019

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Proposed Timeline:

- February 28, 2019
- May 31, 2019
- October 30, 2019
- November 30, 2019
- January 15, 2020
- March, 2020
- Call for Papers to IEEE JESTPE Editorial Office and Newsletter
 - Manuscripts Submission Deadline

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- Revised manuscripts Submission Deadline

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- Final Acceptance Notification
 - Manuscripts Forwarded to IEEE for Publication
 - Special Issue Appears in IEEE JESTPE