Silicon carbide (SiC) power MOSFETs have superior conduction, switching and thermal properties compared to silicon MOSFETs and IGBTs. However, unlike silicon devices, whose reliability is well understood from decades of research and field data, SiC device technology is relatively nascent and has only recently started witnessing wide scale deployment. Consequently, large-scale reliability testing of SiC MOSFETs is needed. In the March 2021 issue of IEEE Power Electronics Magazine, Bhanu Teja Vankayalapati, Fei Yang, Shi Pu, Masoud Farhadi, and Bilal Akin propose a fully modular, highly scalable and practical dc power cycling architecture for discrete SiC MOSFETs. The proposed architecture allows simultaneous aging of 48 devices while enabling independent control of aging conditions of each device under test.


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IEEE Transactions on Power Electronics (TPEL)

The September 2021 issue of TPEL brings you 108 papers on the latest research in power electronics: from Controls in Power Electronics through Wireless Power Transfer!

Top Editor Picks
The editors of IEEE Transactions on Power Electronics have selected the following two papers for their top picks for this issue of the newsletter.

● **GaN-Based Tri-Mode Intelligent Solid-State Circuit Breakers for Low-Voltage DC Power Networks** by Yuanfeng Zhou, Risha Na, Yanjun Feng, Zheng John Shen
  (This paper focuses on intelligent solid-state circuit breakers for dc power networks.)

● **Piezoelectric EMI Filter for Switched-Mode Power Supplies** by Florian Hubert, Philipp
IEEE Transactions on Power Electronics Letters

The September 2021 issue includes 12 compelling TPEL Letters:

1. Series-Resonator Buck Converter—Viability Demonstration
2. An SMES-Based Current-Fed Transformerless Series Voltage Restorer for DC-Load Protection
3. Artificial Intelligence-Aided Minimum Reactive Power Control for the DAB Converter Based on Harmonic Analysis Method
4. Pulsewidth-Modulator-Based Transfer Function Measurement Method for Variable Frequency-Controlled Half- and Full-Bridge Converters
5. Impedance Strengthening and Weakening Networks for Power Converter Analysis and Design
6. Mission Profile Emulator for Individual Submodule in Modular Multilevel Converter With Nearest Level Control
7. An Active Voltage Balancing Method for Series Connection of SiC MOSFETs With Coupling Inductor
8. Voltage Oscillation Suppression for the High-Frequency Bus in Modular-Multiactive-Bridge Converter
10. A Dual-Vector Model Predictive Control Method With Minimum Current THD
11. A Double-Sided Bidirectional Power Module With Low Heat Concentration and Low Thermomechanical Stress
12. An Efficient and Reliable Solid-State Circuit Breaker Based on Mixture Device

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IEEE Journal of Emerging and Selected Topics in Power Electronics (JESTPE)

Announcing a Joint Special Issue/Section
Editorial teams from IEEE Transactions on Energy Conversion & IEEE Journal of Emerging and Selected Topics in Power Electronics are working together to create a joint special issue/section on “Modeling and Control of Converter-Based Resources in Modern Power
IEEE Transactions on Transportation Electrification (TTE)

IEEE Transactions on Transportation Electrification (TTE) is planning a Special Issue on Electrified Aircraft Technologies. Prospective authors are invited to submit manuscripts for review for publication in this special issue. Original research and practical contributions as well as surveys and state-of-the-art tutorials are welcome. The scheduled time of publication is August 2022.

Criteria
Topics of interest include the following in the context of impact on electrified aircraft:
- Electrified Propulsion System Architectures
- Electrical Energy Generation and Storage (battery, fuel cell, energy harvesters, onboard generation, etc.)
- Electric Power Management and Distribution
- Electric Machines • Power Electronics
- Superconducting and Cryogenic Systems and Components
- High Voltage Considerations
- Thermal Management
- Propulsion, and Electric System Integration
- System Dynamics, Modeling, and Control
- Failure / Fault Mode Protection, Diagnostics, and Modeling
- Verification, Validation, and Testing • Safety, Certification, and Standards

Important Deadlines
Full Paper Submission: November 30, 2021

For more information about upcoming special Issues and our submission details visit our publications page at the PELS website: https://www.ieee-pels.org/publications/ieee-transactions-on-transportation-electrification.
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