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RESEARCH AREAS

Power electronics, distributed electrical power generation, switched-mode power conversion, soft-switching, power converter control

PUBLICATIONS

Journal Publications

- J75* P. Roja; V. John, “Comprehensive analysis of phase-shifted full-bridge converter for optimal design,” in *Sadhana, Indian Academy of Sciences*, vol. 50, pp. 276, 2025.
- J74* A. Mukhopadhyay; V. John, “Synthesis of Low-Voltage Minimum Switch-Count DC Bus Second-Harmonic Hybrid Filters,” in *IEEE Transactions on Industry Applications*, vol. 61, no. 2, pp. 3279-3292, March-April 2025.
- J73* S. Maulik; V. John, “Design and Tuning of State Feedback-Based Islanding Detection for Distributed Generators,” in *IEEE Transactions on Energy Conversion*, vol. 40, no. 2, pp. 773-784, June 2025.
- J72* Shimul K. Dam; V. John, “A Direct Modularization Method for Multi-cell to Multi-cell Equalizer With Large Cell Count,” in *IEEE Transactions on Industrial Electronics*, vol. 71, no. 12, pp. 15983-15993, Dec. 2024.
- J3* Rajesh KB; G. Gurralla; V. John, “Solid-State Point-on-Wave Fault Branch With Fault Clearing Capability,” in *IEEE Transactions on Power Delivery*, vol. 39, no. 4, pp. 2253-2263, Aug. 2024.
- J71* A. Mukhopadhyay; V. John, “Solid-State Tuning Restorer for Second-Harmonic LC Filter in Single-Phase Converters,” in *IEEE Transactions on Industry Applications*, vol. 60, no. 1, pp. 658-671, Jan.-Feb. 2024.
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- J69* A. Sengupta; V. Shahu; U. Kundu; V. John, “Low Complexity Digital Quadrature Oscillators for Variable Frequency Applications,” in *IEEE Transactions on Industrial Electronics*, vol. 71, no. 9, pp. 10475-10485, Sept. 2024.
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- J65* P. Roja; D. Venkatramanan; V. John, “A Nonlinear Model Based Analysis and Accurate Design of Ultracapacitor Stack for Energy Storage Systems,” in *IEEE Transactions on Energy Conversion*, vol. 37, no. 1, pp. 403-412, March 2022.
- J64* Shimul K. Dam; V. John, “Low-Frequency Selection Switch Based Cell-to-Cell Battery Voltage Equalizer With Reduced Switch Count,” in *IEEE Transactions on Industry Applications*, vol. 57, no. 4, pp. 3842-3851, July-Aug. 2021.

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Conference Publications

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- C142 Kailas S. Vel, V. M. Iyer, V. John, P. Logesh, M. S. Giridhara and G. Krishnan, "Split Planar Transformer based Auxiliary Power Supply for High Voltage Isolation," 2025 IEEE Energy Conversion Congress and Exposition Asia (ECCE-Asia), Bengaluru, India, 2025, pp. 1-6.
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- C135 Nithyadas P.V., U. Kundu, V. John, "ZVS Operation and Current Ripple Minimization in a Capacitively Blocked Dual Active Half-Bridge Converter," 2024 IEEE Energy Conversion Congress and Exposition (ECCE), Phoenix, AZ, USA, 2024, pp. 2762-2768.
- C134 Ashique M., A. Vinayak, V. John, "Frequency-and Time-Domain-Based Methods to Estimate Parasitic Capacitances in Planar Magnetics using Terminal Measurements," 2024 IEEE International Communications Energy Conference (INTELEC), Bengaluru, India, 2024, pp. 1-6.

- C133 P. Roja, M. S. Ansari, D. Venkatramanan, V. John, "Design Comparison and Investigations into Thermal Failure of HF Transformers in Isolated DC-DC Converters," 2024 IEEE International Communications Energy Conference (INTELEC), Bengaluru, India, 2024, pp. 1-6.
- C132 Ashique. M., M. Jan, V. John, "An Accurate Filament Based Approach to Determine Inductance Matrix of Air-Cored Planar Windings," 2023 IEEE International Conference on Power Electronics, Smart Grid, and Renewable Energy (PESGRE), Trivandrum, India, 2023, pp. 1-6.
- C131 Anjana K.G., K. Babu, U. Kundu, Subhash T.G., V. John, "Three-region frequency control scheme for series resonant converter based X-ray power supply," 2023 IEEE International Conference on Power Electronics, Smart Grid, and Renewable Energy (PESGRE), Trivandrum, India, 2023, pp. 1-6.
- C130 V. Shahu, S. A. Awathare, V. John, "Development of a SiC MOSFET based Half-Bridge Gate Driver," 2023 11th National Power Electronics Conference (NPEC), Guwahati, India, 2023, pp. 1-6.
- C129 M. Palmal, P. Roja, V. John, "Revisiting Numerical Integration Methods for Digital Implementation in Power Electronics Applications," 2023 11th National Power Electronics Conference (NPEC), Guwahati, India, 2023, pp. 1-6.
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- C125 Sukeerti, U. Kundu, V. John, "Exact Analysis and Design of Voltage Multipliers Based on Output Voltage Ripple," 2023 IEEE Energy Conversion Congress and Exposition (ECCE), Nashville, TN, USA, 2023, pp. 6349-6356.
- C124 V. Shahu, V. John, U. Kundu, "Trapezoidal Current Modulation based Zero Voltage Switching of Interleaved Converters," 2023 IEEE Energy Conversion Congress and Exposition (ECCE), Nashville, TN, USA, 2023, pp. 2591-2596.
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- C120 V. Shahu, A. Sengupta, N. Mandru, M. Palmal, U. Kundu, V. John, "Development of an FPGA-based Mixed-domain Control Platform for Power Converter Applications," 2022 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES), Jaipur, India, 2022, pp. 1-6.
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- C112 A. Mukhopadhyay, V. John, "DC Bus Second Harmonic LC Filter with Solid-State Tuning Restorer," 2022 IEEE Applied Power Electronics Conference and Exposition (APEC), Houston, TX, USA, 2022, pp. 1-7.
- C111 P. Roja, V. John, "Reexamining Phase-shifted Full-bridge Converter with PWM Ripple Current," 2021 National Power Electronics Conference (NPEC), Bhubaneswar, India, 2021, pp. 1-6.
- C110 Payal Mishra, V. John, "PV Characterization Method With Controlled Resolution," IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES), Jaipur, India, 2020, pp. 1-6.
- C109 Abhijit. N, Subhash Joshi. T.G, V. John, "Minimum Leakage Inductance for Soft-switching of Dual-Active Half-Bridge DC-DC Converter," IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES), Jaipur, India, 2020, pp. 1-6.
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