

APEC 2021 Technical Session Best Presentation Award Winners

TECHNICAL LECTURE AWARD WINNERS

Session Name	Author/Presenter Name (First Last)	Paper ID	Presentation Title
T01 - Design Techniques for WBG Power Converters	Jian Liu	1370	High Power Density Design of Power Electronic Interrupter in Hybrid DC Circuit Breaker
T02 - Renewable Energy System Control	Yiwei Pan	1665	Flexible Power Control of Distributed Grid-Connected Series-Photovoltaic-Battery Systems
T03 - Circuits & Simulations	Yuqi Wei	1189	A Fast and Accurate Simulation Tool for LLC Converters
T04 - Inverters	Nathan Pallo	1581	A Multi-Phase Segmented Drive Comprising Arrayed Flying Capacitor Multi-Level Modules
T05 - AC-DC Converters I	Mohammad Alhussan	1612	A Single-Phase GaN Totem-Pole PFC with Active Power Decoupling
T06 - Resonant DC-DC Converters	Ahmed Nabih	1770	High Power Density 1 MHz 3 kW 400 V-48 V LLC Converter for Datacenters with Improved Core Loss and Termination Loss
T07 - GaN, Silicon, and Passive Devices	Qihao Song	1553	Robustness of Cascode GaN HEMTs Under Repetitive Overvoltage and Surge Energy Stresses
T08 - Topological Advancements in Wireless Power Transfer Systems	Erdem Asa	1509	A Novel Three-Phase Oak Ridge AC / DC Converter for Wireless EV Charger Applications
T09 - Control of DC-DC Converters I	Janko Celikovic	1776	Sliding Mode Control with Minimum-Deviation Transient Response for Non-Inverting Buck-Boost DC-DC Converters
T10 - Low Voltage DC-DC Converters	Wenkang Huang	1275	A More Accurate Power MOSFET Current Mirror Sensing Scheme in Synchronous Buck Converters
T11 - Control of DC-AC Inverters	Dereje Woldegiorgis	1078	Simple Carrier Based Capacitor Voltage Balancing Technique for Three-Level Voltage Source Inverters
T12 - Transportation: On-board Electric Vehicle Charging	Hyungjin Kim	1753	Single-Stage EV On-Board Charger with Single- and Three-Phase Grid Compatibility
T13 - Three-Phase AC-DC Converters	David Menzi	1151	3-Φ Bidirectional Buck-Boost Sinusoidal Input Current Three-Level SiC Y-Rectifier
T14 - Bi-directional DC-DC Converters	Yuliang Cao	1441	Design and Implementation of High-Density Isolated Bi-Directional Soft-Switching Resonant DC-DC Converter with Partial Power Processing
T15 - Power Converter System-Level Control	Sneha Thakur	1237	Grid Forming Energy Router: A Utility Interface for Renewable Energy Sources and Energy Storage Grid Integration Applications
T16 - Modeling & Control of Wireless Power Transfer Systems	Minki Kim	1559	High-Frequency, Mid-Range Wireless Power Transfer System Using Critical Coupling Coefficient Adjustment
T17 - Gate Drive Circuits	Wan Lin Jiang	1713	Monolithic Integration of a 5-MHz GaN Half-Bridge in a 200-V GaN-on-SOI Process: Programmable dv/dt Control and Floating High-Voltage Level-Shifter
T18 - AC-DC-AC Applications & Matrix Converters	Mario Pérez-Tarragona	1348	Matrix ZVS Resonant Inverter for Domestic Induction Heating Applications Featuring a Front-End PFC Stage
T19 - Control of DC-DC Converters II	Yuqi Wei	1191	A Family of LLC Converters with Magnetic Control
T20 - Grid-Converter Efficiency Improvement	Ali Sheykhi	1510	Parallel Inverter System Efficiency Improvement Using Alternative Adaptive Droop Control
T21 - Transportation: Electric Vehicle Drives	Haleema Qamar	1293	DC Link Capacitor Sizing for 240°-Clamped Space Vector PWM for EV Traction Inverters
T22 - Transportation: Modelling and Diagnostics in Electric Vehicles	Bowen Yang	1209	Physics-Based Attack Detection for Traction Motor Drives in Electric Vehicles Using Random Forest
T23 - High Frequency Magnetics	Roderick Bayliss III	1515	Design, Implementation, and Evaluation of High-Efficiency High-Power Radio-Frequency Inductors
T24 - Control I	Aritra Kundu	1605	Optimization Strategy of WBG Fractional Power Processing
T25 - Energy Storage Systems & Grids	Marium Rasheed	1449	Composite Hybrid Energy Storage System Utilizing Capacitive Coupling for Hybrid and Electric Vehicles
T26 - Control II	Tom Urkin	1103	Digital Multiphase PWM Integrated Module Generated from a Single Synchronization Source
T27 - Motor Drives & Control	Md Khurshedul Islam	1536	Modeling and Design of a 6-Phase Ultra-High-Speed Machine for ELF/VLF Wireless Communication Transmitter
T28 - Components and Methods for Fault Protection	Yue Zhang	1639	T-Type Modular DC Circuit Breaker (T-Breaker) for Future DC Networks
T29 - Transportation: Applied Power Electronics in Electric Vehicles	Goutham Selvaraj	1662	An Enhanced Controller for Four Leg Inverter-Fed Loads in an Aircraft Power System
T30 - SiC Devices	Ashish Kumar	1676	Performance Evaluation of 10 kV SiC Current Switch Based PWM Current Source Inverter for 4.16 kV Motor Drive Applications
T31 - Hybrid DC-DC Converters	Nathan Ellis	1643	A Resonant Dual Extended LC-Tank Dickson Converter with 50% Two-Phase Operation at Odd Conversion Ratios
T32 - Miscellaneous Power Electronics Applications	Kawsar Ali	1758	Implementation of a P&O MPPT Algorithm in Low-Milliwatt-Scale Energy Harvesting Wireless Sensor Nodes
T33 - Power Electronics for Renewable Energy Systems	Parham Mohammadi	1617	A New Fully Soft-Switched, Single-Stage LLC Resonant Based Grid Connected Inverter
T34 - Power Converter Component Packaging & Reliability	Minh Ngo	1476	Computational Fluid Dynamic Analysis and Design of an Air Duct Cooling System for 18 kW, 500 kHz Planar Transformers
T35 - Components Characterization & Design	Logan Horowitz	1633	A Method of Partial Inductances to Evaluate and Optimize Switching Cells
T36 - Design & Analytical Methodologies of Wireless Power Transfer Systems	Sreyam Sinha	1658	Comparison of Large Air-Gap Inductive and Capacitive Wireless Power Transfer Systems
T37 - SST and Inverter Topologies	Muhammad Shehroz Malik	1236	Analytical Expression for DC Link Capacitor Current in a Cascaded H-Bridge Multi-Level Active Front-End Converter
T38 - Magnetic Analysis and Simulation	Michael Solomentsev	1218	Modeling Current Distribution Within Conductors and Between Parallel Conductors in High Frequency Transformers
T39 - DC-DC Converter Applications	Bastian Korthauer	1242	Design and Analysis of a Regenerative Snubber for a 2.2 kW Active-Clamp Forward Converter with Low-Voltage Output

TECHNICAL DIALOGUE AWARD WINNERS

Session Name	Author/Presenter Name (First Last)	Paper ID	Presentation Title
D01 - AC-DC Converters II	Ripunjay Phukan	1527	An Approach to Localize Circulating Current for Three Phase Interleaved AC-DC Converters
D02 - DC-DC Converters	Mengxuan Wei	1223	Performance Evaluation and Analysis for Resonant Switched Capacitor Converter
D03 - Utility Interface	Haiguo Li	1378	Medium Voltage Converter Inductor Insulation Design Considering Grid Insulation Requirements
D04 - Design & Control of Motor Drives & Inverters	Sang Min Kim	1023	Design of Switching Current Sensor for Three-Phase SiC Inverter
D05 - Devices I: SiC	Boyi Zhang	1546	Radiated Electromagnetic Interference Modeling for Three Phase Motor Drive Systems with SiC Power Modules
D06 - Devices II: GaN and Passive	Juntao Yao	1009	Investigation of Noise Spectrum and Radiated EMI in High Switching Frequency Flyback Converters
D07 - Power Component Design, Packaging & EMI Considerations	Tyler McGrew	1297	Condition Monitoring of DC-Link Capacitors Using Hidden Markov Model Supported-Convolutional Neural Network
D08 - Modeling & Simulation	Andrew Wunderlich	1033	Digital Twin Models of Power Electronic Converters Using Dynamic Neural Networks
D09 - Control III	Franco Degioanni	1294	Characterization of the Minimum Recovery Time Transients for Three-Phase PWM Rectifiers
D10 - Control IV	Jiewen Hu	1394	Enhanced Gate Driver Design for SiC-Based Generator Rectifier Unit for Airborne Applications
D11 - Wireless Power Transfer Systems	Peng Zhao	1336	Heat Distribution of IPT Receiver with Low-Voltage and High-Current Output
D12 - Renewable Energy Systems I	Namwon Kim	1661	Preventing Voltage Divergence in Series-Stacked Bidirectional Battery Energy Storage DC-DC Converter Under Asymmetrical Operating Conditions
D13 - Renewable Energy Systems II	Manash Kumar Mishra	1396	An Enhanced Control Strategy for Harmonic Current Suppression of Grid-Connected PV System Without Phase-Locked Loop Under Distorted Grid Voltage Conditions
D14 - Transportation: More Electric Transportation	Samantha Coday	1602	A 10-Level GaN-Based Flying Capacitor Multilevel Boost Converter for Radiation-Hardened Operation in Space Applications
D15 - Power Applications	Sangwon Lee	1405	Reconfigurable Multi-Cell Battery Pack for Portable Electronic Devices with the Capability of Simultaneous Charging and Discharging
D16 - Magnetics	Ruaidhri Murphy	1298	High Frequency Magnetic Sheet Materials – Performance Factor Comparisons and Design of Toroidal Inductors Embedded in PCB