

APEC 2025 Technical Session Best Presentation Award Recipients

As much as engineers need technical skills, they also need communications skills. If an engineer cannot effectively convey their work to others, then that work has little value. Engineers typically communicate through written reports and presentations. To encourage development of high quality presentation skills APEC several years ago started giving awards and recognition for the “Best Presentation” in each Technical Lecture and Dialogue Session.

The APEC Best Presentation Awards are determined based on scores provided by Session Chairs during the conference, using a range of criteria that include the quality of slides, the presentation, and how well the presenter responds to questions. An APEC Best Presentation Award is a significant professional achievement

Please join APEC in congratulating the APEC 2025 Best Presentation Award recipients.

Olivier Trescases
APEC 2025 Awards Chair

Lecture Sessions

Session: T01 - AC-DC Converters I

Paper Title: A 10 kV SiC MOSFET Based Three-Phase Single-Stage Isolated MVAC/LVDC Converter for Solid State Transformer Applications

Presenter: Anup Anurag (First Author)

Session: T02 - Bi-directional DC-DC Converters

Paper Title: A 6.6 kW Highly Efficient Reconfigurable Dual Active Bridge Converter Designed Using Planar Transformer, SiC-Fets and Monolithic Bidirectional Devices

Presenter: Fabian Groon

Session: T03 - Single & Multiphase Inverters

Paper Title: Analysis and Implementation of Minimum-Sensor Capacitor Voltage Estimators for Flying Capacitor Multilevel Converters

Presenter: Syed Tahmid Mahbub (First Author)

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Session: T04 - GaN Power Devices

Paper Title: Impact of Substrate Bias on the Stability of Bidirectional GaN HEMT in Hard- and Soft-Switching

Presenter: Qihao Song (First Author)

Session: T05 - Magnetics Applications I

Paper Title: Folded Flex-PCB Winding Planar Transformer for High-Frequency Isolated DC-DC Converters

Presenter: Hans Wouters

Session: T06 - Control of Power Electronic Converters I

Paper Title: Small-Signal Analysis and External Ramp Design for Multiphase Current-Mode Constant On-Time Control with Phase Overlapping

Presenter: Sundaramoorthy Sridhar (First Author)

Session: T07 - Modeling & Simulation I

Paper Title: A Compact, Automated Sawyer-Tower System for Characterization of the High-Frequency, Soft-Switching Coss Loss of Wide Bandgap Devices

Presenter: Katherine Liang (First Author)

Session: T08 - EV Charging Applications

Paper Title: Reconfigurable LLC Resonant Converter for Wide Voltage Range and Reduced Voltage Stress in DC-Connected EV Charging Stations

Presenter: Yu Zuo (First Author)

Session: T09 - Point-of-Load Converters

Paper Title: Multiphase Lateral Flux Indirect Coupled Inductor for Vertical Power Delivery Voltage Regulator Module

Presenter: Adhistira Naradhipa (First Author)

Session: T10 - Magnetics Modelling

Paper Title: Design-Oriented Modeling and Multi-Objective Optimization of Two-Phase Coupled Inductors in Multiphase PWM Converters

Presenter: Yicheng Zhu (First Author)

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Session: T11 - Power Conversion for Microgrids

Paper Title: A Novel Current Control Technique for Off-Grid Single-Phase Inverters

Presenter: Arpan Laha (First Author)

Session: T12 - Control of Power Electronic Converters II

Paper Title: High-Frequency Flying Capacitor Four-Level Drain Supply Modulator

Presenter: Audrey Cheshire (First Author)

Session: T13 - Renewable Energy Systems

Paper Title: Single-Stage High-Frequency-Link Split-Phase Microinverter with High Voltage Gain Based on Buck-Boost AC Chopper

Presenter: Xuewen Li (First Author)

Session: T14 - Wireless Power Transfer: Design & Control

Paper Title: Leveraging Ultrasound and Neural Networks for Non-Invasive Power Converter Efficiency Estimation

Presenter: Youssof Fassi (First Author)

Session: T15 - Power Electronics Applications I

Paper Title: A GaN-Based Single-Stage Solid-State Transformer Replacement for 40 VA Class 2 Line-Frequency Transformers

Presenter: Allen Nguyen (First Author)

Session: T16 - Motor Drives I

Paper Title: Uncertainty-Aware Artificial Intelligence for Gear Fault Diagnosis in Motor Drives

Presenter: Subham Sahoo (First Author)

Session: T17 - Resonant & Quasi-Resonant DC-DC Converters

Paper Title: High-Efficiency Isolated Piezoelectric Transformers for Magnetic-Less DC-DC Power Conversion

Presenter: Sourav Naval (First Author)

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Session: T18 - GaN & SiC Power Devices

Paper Title: First Characterization of GaN Power Device and IC at Deep Cryogenic Temperatures Down to 100 mK

Presenter: Qihao Song

Session: T19 - Gate Drive Circuits I

Paper Title: A Discrete Multilevel Active Gate Driver for GaN HEMTs to Optimize the Switching Behavior

Presenter: Celine Lawniczak (First Author)

Session: T20 - Modeling & Simulation II

Paper Title: The Utilization of a Parallel Computing Algorithm for Accelerating Switching-Level Modeling of Power Electronics Simulations in a T-Type PV Inverter

Presenter: Buck F. Brown III (First Author)

Session: T21 - Critical Applications in Space & Transportation

Paper Title: Uninterruptable Non-Isolated Integrated Power Electronics Converter (UNIPEC) for Commercial Truck Auxiliary Power Unit

Presenter: (Pouya Zolfi First Author)

Session: T22 - Motor Drives II

Paper Title: Wireless Actuation of Magnetic Robots with a Modular 60 mT 3-D Helmholtz Coil System

Presenter: Konstantinos Manos (First Author)

Session: T23 - Solid State Transformer Design & Control

Paper Title: Comparative Analysis of Carbon Footprints and Material Usage of Solid-State Transformers and Low-Frequency-Transformer-Based MVac-LVdc Interfaces for High-Power EV Charging

Presenter: Luc Imperiali (First Author)

Session: T24 - Reliability, Efficiency, & Thermal Performance of Power Modules & Components

Paper Title: Electrical Evaluation of a Modular High Voltage 3D Power Module Using Direct Dielectric Liquid Cooling

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Presenter: Omar Sanjakdar (First Author)

Session: T25 - 48V-to-1V Direct DC-DC Converters

Paper Title: Interphase LC-Oscillation Suppression with Fast Line-Transient Response in 48-V Series-Capacitor Buck Converters for Automotive Applications

Presenter: Wan Lin Jiang (First Author)

Session: T26 - Multilevel Inverters

Paper Title: Layout Optimization for Parasitic Inductance Reduction of GaN-Based NPL.X Multilevel Inverter

Presenter: Ali Halawa (First Author)

Session: T27 - Power MOSFETs & IGBTs I

Paper Title: Optimizing MOSFET Selection for EMC-Critical Automotive Applications

Presenter: Sacha Cazzitti (First Author)

Session: T28 - Design Techniques for Power Modules

Paper Title: Planar Rogowski Coil-Based Switch Current Measurement for a 1.2 kV SiC MOSFET Embedded Die PCB

Presenter: Matthias Spieler (First Author)

Session: T29 - Gate Drive Circuits II

Paper Title: Investigating the Temperature Dependency and Operating Parameters of a Self-Driving Active Gate Driver

Presenter: Vin Loong Choo (First Author)

Session: T30 - Energy Flow & Battery Management Systems

Paper Title: Single Cell Energy Router Justification for Three Phase Near Zero Energy Buildings

Presenter: Oleksandr Husev

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- Session: T31 - MHz Frequency Wireless Power Transfer
Paper Title: A 10.4-kW High-Power-Transfer-Density Multi-MHz Capacitive Wireless Power Transfer System for EV Charging Utilizing Stacked-Inverter Stacked-Rectifier Architecture
Presenter: Dheeraj Etta (First Author)
- Session: T32 - 48V Intermediate Bus Converters
Paper Title: A 96.1% Peak Efficiency, 6.8 kW/in³, 48V-to-6V On-Package Intermediate Bus Converter with LV-GaN Power Transistors
Presenter: Mausamjeet Khatua (First Author)
- Session: T33 - DC-DC Converter Applications
Paper Title: An Ultra-Fast Very Large Scale Interleaved Li-Fi Transmitter
Presenter: Daniel Zhou (First Author)
- Session: T34 - Inverter Modulation & Control Strategies
Paper Title: Short-Circuit Ride-Through for a CRM-Based Soft-Switching Three-Phase Inverter
Presenter: Xingyu Chen (First Author)
- Session: T35 - Power MOSFETs & IGBTs II
Paper Title: IGBT Comparison for Optimized Switching Behavior in the SiC/Si-Hybrid Switch
Presenter: Adrian Amler (First Author)
- Session: T36 - Magnetics Design & Modelling
Paper Title: Free-Shape Optimization of VHF Air-Core Inductors Using a Constraint-Aware Genetic Algorithm
Presenter: Thomas Guillod (First Author)
- Session: T37 - Packaging of Power Devices & Modules
Paper Title: A Scalable Dual-Orthogonal-Cooling Packaging Concept for Parallel-Series SiC Chips
Presenter: Ekaterina Muravleva (First Author)

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Session: T38 - Modeling & Simulation III

Paper Title: PiezoNet and Data-Driven Models for Time-Domain Characterization of Piezoelectric Resonators

Presenter: Davit Grigoryan (First Author)

Session: T39 - Auxiliary Systems & Applications in EVs

Paper Title: A Novel 500-kHz LLC-T Resonant Converter with Wide Output Range

Presenter: Zhengming Hou (First Author)

Session: T40 - Grid-Tied Inverter Control

Paper Title: Enhanced Control for Integrated Active Power Decoupling in Single-Phase Three-Level Flying Capacitor PFC Converter

Presenter: Gleisson Balen Rosset (First Author)

Dialogue Sessions

Session: D01 - AC-DC Converters II

Paper Title: Extended Smart-Link Quasi-Single-Stage 3-Phase AC-DC Power Supply Module for AI-Driving Data Centers

Presenter: Davide Biadene (First Author)

Session: D02 - High Voltage DC-DC Converters I

Paper Title: Multiple-Core Transformer Design Based on Half-Turn Structure in Two-Stage DC-DC Converter for Battery Storage System

Presenter: Yilei Li (First Author)

Session: D03 - Low Voltage DC-DC Converters I

Paper Title: Design and Implementation of a GaN-Based Soft-Switched Series-Capacitor Buck Converter Operating at the CCM-DCM Boundary for High-Performance Computing Systems

Presenter: Ramin Rahimzadeh Khorasani (First Author)

Session: D04 - High Voltage DC-DC Converters II

Paper Title: Dimensional Parasitics Absorption in Capacitively-Isolated Cuk Converter for Medium-Voltage High Step-Down Converters

Presenter: Aakash Kamalapur (First Author)

Session: D05 - Low Voltage DC-DC Converters II

Paper Title: The Analysis and Design of a Resonant Capacitively-Isolated Cockcroft-Walton Converter

Presenter: Elizabeth Rabenold (First Author)

Session: D06 - DC-AC Inverters

Paper Title: Low-Complexity Model Predictive Control Method for Driving Dual Induction Motors Fed by Five-Leg Inverter

Presenter: Junyoung Lee (First Author)

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Session: D07 - Power Devices & Components I

Paper Title: Switching Performance Comparison of Low-Voltage GaN and Si Devices

Presenter: Tianxiao Chen (First Author)

Session: D08 - Power Devices & Components II

Paper Title: Comparison of Static Characteristics in GaN HEMTs Across 50K to 400K Considering Diverse Techniques and Statistical Variation

Presenter: Purushottam Khadka (First Author)

Session: D09 - Magnetics Characterization & Designs

Paper Title: A High Frequency Coupled Inductor with Distributed Air Gap for High Power DC-DC Converters

Presenter: Muhammad Fasih Uddin (First Author)

Session: D10 - Magnetics Applications II

Paper Title: Improved High-Speed Thermal Analysis Based on Two-Step Simulation for High-Frequency Transformers

Presenter: Zengyang Liu

Session: D11 - Power Converter Design, Packaging & Integration

Paper Title: Coaxially Nested 3.3 kV SiC MOSFET Packages with Uniform Interpackage Electric Field Distribution

Presenter: Jack Knoll (First Author)

Session: D12 - Control I

Paper Title: An Extra-Element Small-Signal Model for a Current-Fed Resonant Dual-Active-Bridge Converter

Presenter: Paolo Sbabo (First Author)

Session: D13 - Control II

Paper Title: A Novel IPPC Method for Precise Overload Protection and Burst Mode Operation in LLC Resonant Converters

Presenter: Manikanta Pallantla (First Author)

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Session: D14 - Control IV

Paper Title: Exploring the Potential of FPGA in High-Frequency Switching DC-DC Boost Converters Using Model Predictive Control

Presenter: Qingcheng Sui (First Author)

Session: D15 - Control III

Paper Title: Achieving Soft-Charging and Over 20% Input Current Ripple Reduction in a 48-to-6 V Dickson Converter Using 3-Phase Split-Phase Control

Presenter: Nagesh Patle (First Author)

Session: D16 - Modeling & Simulation IV

Paper Title: Scattering Parameter Measurement System Using Probes for Surface Mount Devices Operating in the Frequency Range from 50 kHz to 1 GHz

Presenter: Ryoko Kishikawa (First Author)

Session: D17 - Modeling & Simulation V

Paper Title: Accurate Modeling of LLC Resonant Converters with Enhanced Analytical Approach Considering of Parasitic Capacitance

Presenter: Dong Jiao (First Author)

Session: D18 - Motor Drives III

Paper Title: A Novel Speed Sensor-Less Control of a Solar-Powered PMSM Drive

Presenter: Abirami Kalathy (First Author)

Session: D19 - Utility Applications I

Paper Title: Design of a Compact Low-Loss MMC Double Submodule for MVDC and HVDC Applications

Presenter: Ali Sharaf Addin (First Author)

Session: D20 - Utility Applications II

Paper Title: LCL Filter Parameter Selection Using Graphical Method for a 13.8 kV ac 1.1 MVA 7-Level Flying Capacitor Grid-Connected Converter Utilizing Variable Switching Frequency

Presenter: Arthur Mendes (First Author)

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Session: D21 - Power Electronics for Renewable Energy

Paper Title: Comprehensive Evaluation of Cyber Attacks on Grid-Connected Smart Inverters

Presenter: Vishwam Raval

Session: D22 - Transportation Electrification I

Paper Title: Isolated Single-Phase Onboard Chargers for BEV/PHEV Using Active Power Decoupling Technology

Presenter: Yoshiki Amano (First Author)

Session: D23 - Transportation Electrification II

Paper Title: A Hybrid Three-Level Buck Converter with Flying Supercapacitor for High Load Current Surge Capability Using Peak Current Mode Control

Presenter: Finlay Lodge (First Author)

Session: D24 - Wireless Power Transfer I

Paper Title: The Challenge of Thermal Runaway in Soft Magnetic Materials for Inductive Power Transfer

Presenter: Yibo Wang (First Author)

Session: D25 - Wireless Power Transfer II

Paper Title: Analysis and Design of Capacitive Coupling Wireless Power Transfer System Using Load-Independent Class-EF Inverter

Presenter: Takumi Kobayashi (First Author)

Session: D26 - Power Electronics Applications II

Paper Title: Practical PCB Design Considerations for GaN HEMTs Based Isolated DC-DC Converter

Presenter: Gaureej Gauttam (First Author)