

## EPE'25 – Paris, France (31 March > 4 April 2025)

### List of Keywords

12-Pulse rectifier	Asynchronous motor
3-Level NPC	Asynchronous rectifier
Aalborg inverter	Automatic Generation Control
AC machine	Automatic Voltage Regulator
AC-AC	Automotive application
AC-AC converter	Automotive component
AC-cable	Automotive electronics
Accelerators	Autotuning
AC-DC	Auxiliary power module
AC-DC converter	Avalanche
AC-DC microgrid	Axial flux
Acoustic noise	Axial flux hybrid-excitation machine
Active damping	Axial machines
Active Disturbance Rejection Controller (ADRC)	Back Propagation
Active filter	Batteries
Active front-end	Battery
Active magnetic bearing	Battery charger
Active power-decoupling circuit	Battery electrochemical model
Active Power-Line Conditioning	Battery energy storage system
Active protection	Battery impedance measurement
Actuator	Battery Management Systems (BMS)
Adaptive auto-reclosing	Bearing currents
Adaptive control	Bi-directional
Additive manufacturing	Bi-directional converters
Adjustable speed drive	Billing rules
Adjustable speed generation system	Bipolar DC
ADMM algorithm	Bipolar device
Aerospace	Bipolar Junction Transistor (BJT)
Aging	Black start
Air-friction loss	Block modulation
Airplane	Body-diode
All Electric Aircraft	Boost
Alternative energy	Boost inductor optimization
Ampere's Law	Brain emotional learning
Amplifiers	Braking chopper
Analytical losses computation	Branch currents mismatch
Analytical model	Breakdown
Ancillary services	Brushless doubly fed reluctance machine
Angle Control	Brushless drive
AQG-324 standard	Buck converter
Arbitrary wave shape generator for dielectric test	Buck-boost converter
Arm inductor	Bus bar
Artificial intelligence	Calculation method

Capacitive coupling	Conversion ratio
Capacitor coupled	Converter circuit
Capacitor voltage balancing	Converter control
Capacitors	Converter machine interactions
Carbon neutrality	Cooling
Cascaded H-Bridge	Core loss
Cascode	Core loss modelling
CC-CV charging	Corrosion testing
Chaotic suppression EMI	Co-simulation
Charge compensation device	Cost
Charge scheduling	Cost analysis
Charge station	Cost function
Charging	Coupled capacitor
Charging infrastructure for EV's	Coupled inductor
Cigre benchmark	Coupling characteristics
Circuits	Cryogenic
ClampDRIVE	CSI
Class-D amplifier	Current balancing
CLLC resonant converter	Current derivative
Closed form equations	Current doubler
Combination MMC-LLC	Current filaments
Combined heat and power	Current limiter
Combo CCS Type 2	Current loop
Commercial microgrid controller	Current observer
Common ground	Current sensor
Common-mode current	Current sharing
Communication for Power Electronics	Current source
Community microgrid	Current Source Converter (CSC)
Commuting	Current Source Inverter (CSI)
Compensation	Current-fed converter
Component for measurements	Current-source DC-DC
Compressor	Cyber attack
Computational cost	Cyber physical system
Condition monitoring	DAB control
Conduction losses	DAB-LLC converter
Consensus	Damping network
Consensus-based cooperative control	Data analysis
Contact resistance	Data transmission
Contactless energy transfer	Data-driven
Contactless power supply	DC bias
Control interactions	DC circuit breaker
Control methods for electrical systems	DC collector network
Control of drive	DC diode-mode test
Control strategy	DC grid component
Controllable short-circuit current	DC grounding
Controller benchmark	DC impedance scanning
Controllers	DC machine
Controllers PI control	DC power supply

DC railway power supply  
 DC voltage control  
 DC-AC  
 DC-AC converter  
 DC-cable  
 DC-DC  
 DC-DC converter  
 DC-DC power converter  
 DC-link  
 DC-Link capacitor  
 Deadbeat control  
 Dead-time  
 Decentralized control structure  
 Deep learning  
 Deep Neural Network  
 Degradation  
 Demagnetization  
 Demand response  
 Design  
 Design optimization  
 Design Space Optimization  
 Device  
 Device application  
 Device characterisation  
 Device integration  
 Device modelling  
 Device simulation  
 Devices  
 Device-to-system  
 DFLM  
 Diagnostics  
 Diamond  
 Dielectric losses  
 Dielectric tests  
 Differential inverters  
 Digital control  
 Digital twin-based health monitoring  
 Diode  
 Direct matrix converter  
 Direct power control  
 Direct torque and flux control  
 Direct Torque Control (DTC)  
 Discontinuous pulse-width modulation  
 Discrete power device  
 Discrete time domain modelling  
 Discrete wavelet transform  
 Discrete-model  
 Discrete-time  
 Distributed generation  
 Distributed model predictive control  
 Distributed power  
 Distribution FACTS (DFACTS)  
 Distribution of electrical energy  
 Distribution STATCOM doubly fed induction motor  
 DM inductance  
 Double pulse test  
 Double-input converter  
 Doubleside cooling (DSC)  
 Double-Star Chopper Cells (DSCC)  
 Doubly-Fed Induction Generator (DFIG)  
 Drilling  
 Drive  
 Driver concepts  
 Droop control  
 DSP  
 Dual Active Bridge (DAB)  
 Dual Active Bridge (DAB) DC-DC converter  
 Dual Active Bridge Converter  
 Dual Two-Level Converter  
 Dual-mode  
 dV/dt  
 Dynamic avalanche  
 Dynamic power flow simulation  
 Dynamic Ron  
 Dynamic Voltage Restorer (DVR)  
 Dynamic wireless charger  
 Economic dispatch  
 Eddy current loss  
 Education methodology  
 Education tool  
 EESM  
 Efficiency  
 Eigenvalue analysis  
 EIS  
 Elastic / Plastic deformation  
 Electric bicycle  
 Electric bus fleet  
 Electric drive  
 Electric propulsion  
 Electric Vehicle (EV)  
 Electrical drive  
 Electrical machine  
 Electrified aircraft  
 Electroactive materials  
 Electroluminescence  
 Electrolysis

Electromagnetic energy harvester	Fault ride-through
Electromagnetic Interference (EMI)	Fault tolerance
Electronic ballast	Faults
Electronic load	Fault-tolerant control
Electronic tap changer	Feature engineering
Electrostatic machine	Ferrite
Embarked networks	Ferrite assisted Synchronous Reluctance Machine
EMC Capacitors for WBG	Field Oriented Control
EMC/EME	Field Programmable Gate Array (FPGA)
EMC/EMI	Fieldbus
Emergency power supply	Filter design automation
Emerging technology	Filter optimization
Emerging topology	Filtering
EMI modeling	Finite Control Set
E-Mobility	Finite-element analysis
Energetic macroscopic representation	Finite-element method
Energy Balancing	Flatness control
Energy Control Unit (ECU)	Flicker
Energy conversion	Fluctuating dc-link voltage
Energy converters for HEVs	Flux model
Energy digitalization	Flux separation
Energy harvesting (Piezo)	Flux weakening
Energy island	Flux-concentrating
Energy lifetime	Flux-Switching Machine
Energy management	Flyback converter
Energy Management System (EMS)	Flying Capacitor Boost Converter
Energy requirement and losses estimation	Flying Capacitor Converter
Energy storage	Flywheel
Energy transformation	Flywheel system
Energy transition	Foil winding
Entropy	Force Control
Envelope amplifier	Four-Switch Buck-Boost Converter (FSBB)
Environment	Four-wire measurement
Estimation technique	Fractional slot concentrated windings
Evaluation kit	Free Wheel Diode (FWD)
Excitation system	Frequency
Experimental testing	Frequency dynamics
Exponential matrix	Frequency estimation
FACTS	Frequency modulation
Failure modes	Frequency scaling
Failure rate	Frequency-domain analysis
False turn-on	Fuel Cell
Fast fault detection	Fuel Cell Electric Vehicle (FCEV)
Fast recovery diode	Fuel Cell system
Fast transient response	Functional safety torque estimation
Fault detection	Fuzzy control
Fault handling strategy	Gallium Nitride (GaN)
Fault operation	Game theory



Gate driver	High-speed drive
Gate recess	Honeycomb approach
Gate voltage boosting	Humidity
Gate-drive	HVDC
Generalized second-order differentiator	Hybrid
Generation of electrical energy	Hybrid control method
Generator	Hybrid control strategy
Generator excitation system	Hybrid DC breaker
Genetic algorithm	hybrid DC transformer
Green aviation	Hybrid Electric Vehicle (HEV)
Grid integration	Hybrid power integration
Grid measurements	Hybrid simulation
Grid-connected converter	Hybrid switched capacitor
Grid-connected converter control	Hybrid transformer
Grid-connected inverter	Hydrogen
Grid-forming	I <sup>2</sup> t rectifier diodes
Grid-forming converter	IED
Grounding	IGBT
Half bridge	IGCT
Half-bridge active-clamp converter	Imbalanced classification learning
Hard switching	Immunity
Hardware	Impedance analysis
Hardware design	Impedance measurement
Hardware-In-the-Loop (HIL)	Impedance model
Harmonic	Incremental capacity
Harmonic current model	Indirect Matrix Converter (IMC)
Harmonic injection	Induction heating
Harmonic summation	Induction motor
Harmonic voltage mitigation	Industrial application
Harmonics	Industrial communications
Harmonics active filter	Industrial information systems
Health assessment	Inertia support
Heat-pipe evaporator	Input admittance
HEMT	Inrush current
HEMTs	Insertion loss
High frequency power converter	Insulation
High low-frequency ripple	Integrated Chargers
High performance	Integrated Circuit (IC)
High power density systems	Integrated Drive
High power discrete device	Integrated motor drives
High speed drive	Integrated on-board charger
High temperature electronics	Integrated Rogowski coils
High voltage IC's	Integrated transformer
High voltage power converters	Integration
High-accuracy positioning	Intelligent drive
High-definition output	Intelligent gate driver
High-frequency windings	Intelligent Power Module (IPM)
Highly dynamic drive	Intercell transformer

Interconnected microgrids	Machine emulation
Interharmonics	Machine learning
Interleaved converters	Machine tool drive
Interleaved inverters	Magnet loss
Interoperability	Magnetic bearings
Inverter	Magnetic coupling
Inverter design	Magnetic device
Inverter-output filter	Magnetic energy harvesting
Iron losses	Magnetic leakage field
Islanded operation	Magnetic saturation
Islanding detection	Magnetics definition
ISO 15118.20	Maintenance
Isolated bidirectional DC-DC converters	Marine
Isolated converter	Marx circuit
Iterative learning	Marx generator
I-V signature	Matrix converter
JFET	Maximum Power Point Tracking (MPPT)
Junction temperature	Maximum Power Point Tracking Quadratic
Junction temperature control	Converters
Junction temperature estimation	Measurements
Junction temperature measurement	Mechanical layout
Kalman Filter	Mechatronics
Kelvin source	Medium frequency
LC resonance	Medium frequency transformer
LCL	Medium voltage
LCL-type inverter	Medium voltage converter
Leakage current	Medium voltage grid
Levelized cost of energy	Medium Voltage Power Module
Life Cycle Analysis (LCA)	Microcontrollers
Lifetime	Microgrid
Lighting	Micro-inverter
Linear drive	Midpoint voltage balancer
Linear time periodic systems	Miniaturization
Lithium-ion	Mission profile
Lithium-ion battery	Model free control
Litz wire	Model Predictive Control
LLC resonant converter	Model-based Predictive Control
LMI	Modelling
Load commutation switch	Modified nodal analysis
Load imbalance	Modified PMR control
Load sharing control	Modified-TOGI-PLL
Load shedding	Modular converter
Load torque	Modular matrix converter
Locomotive	Modular Multilevel Converters (MMC)
Low inductive busbar	Modular Reconfigurable Batteries
Low-Inertia Grid	Modular topologies
LVDC	Modulated Hysteresis Direct Torque Control
M2DC	Modulation scheme

Modulation strategy	Non-intrusive load monitoring
Module temperature measurement	Non-isolated EV Chargers
Monolithic power integration	Non-linear control
More-Electric Aircraft	Non-linear loads
MOS device	Non-standard electrical machine
MOSFET	Normally-off
Motion control	Normally-on
MPC (Model-based Predictive Control)	NTC sensor
MPPT	Nuclear fusion
M-Shunt	OCV fitting
Multi-active bridge	Ohmic losses
Multi-agent system	ON/OFF control
Multi-axle drives	On-board auxiliary power supply system
Multicopters and drones	On-board charger
Multi-energy microgrids	On-board network
Multi-level converters	On-chip fuse
Multi-level hysteresis control	Open switch fault
Multi-level inverters	Open-end winding
Multi-level system	Open-ended winding PMSM
Multi-machine system	Operating condition
Multi-mode converter	Optimal angle
Multi-objective optimization	Optimal control
Multiphase converter	Optimal efficiency drive
Multiphase drive	Optimization
Multi-physics design	Optimization algorithm
Multiple secondary windings	Optimization method
Multi-port converters HVDC/MVDC/HVAC	Optimized pulse pattern
Multi-rotor wind turbine clustering	Overcurrent capability
Multi-terminal HVDC	Overcurrent protection
Multi-terminal hybrid UHVDC	Overload
Mutual couplings	Overmodulation
Mutual inductance	Overstaying problem
Nano-crystalline core	P&O MPPT
Nano-grid	Packaging
Nanotechnology	Parallel Hybrid Converter
Natural convection	Parallel operation
Nearest level modulation	Paralleling
Nelder-Mead simplex algorithm	Parameter identification
Neural network	Parasitic elements
Neuronal control	Parasitic inductance
Neutral current ripple	Parasitic turn-on
Neutral Point Clamped Inverter	Parasitics
New switching devices	Partial discharge
Night mode	Partial-Power Processing
Nine-switch converter	Particle accelerator
Noise	Particle filter
Non-constant failure rates	Passive component
Non-identical devices	Passive component integration

Passive filters	Power flow
Passivity	Power flow control
PCB Bus	Power fluctuation compensation
PD-PWM	Power Hardware-in-the-loop
Performance ratio	Power integrated circuit
Permanent magnet	Power line communication
Permanent magnet motor	Power line inspection
Permanent Magnet Synchronous Generator	Power losses
Permeability	Power management
P-GaN regrowth	Power measurement
Phase-shedding	Power module
Phase-Shift Mode	Power plant performance
Phasor measurement unit	Power quality
Photovoltaic	Power semiconductor device
Photovoltaic smoothing	Power sharing
Physics research	Power supply
PI controller	Power system
Piezo actuators	Power system stability
Piezoelectric resonator	Power transmission
PI-MR control	Power-to-X
Planar core	Powertrain
Planar magnetics	PR-Controller
Planar transformer	Pre-compliance
Plasma	Predictive control prognosis
PLL	Predictive fatigue modeling
Plug and play control	Pressing
PM assisted Synchronous Reluctance Machine	Prognostics
PMSM	Programming
Polarity comparison	Proportional Resonant Control
Pole placement	Protection device
Pole shift	PR-plug-in RC
Pole-phase changing	Pulsating DC Link Converter (PDLC)
Polymer-epoxy	Pulse current charge/discharge
polypropylene film capacitor	Pulse Width Modulation (PWM)
Portable appliances	Pulsed current
Position measurement	Pulsed power
Positioning of converter	Pulsed power converter
Power balance control technique	PV active generator
Power capability	PV inverter
Power conditioning	PWM comparator
Power converters for EV	Quad-Active-Bridge Series-Resonant Converter
Power converters for FCEV	Quasi-two-level
Power converters for HEV	Radio Frequency (RF)
Power cycling	Rail vehicle
Power density optimisation	Railway power supply
Power die	Railway traction system
Power factor	Railway vehicles
Power factor correction	Reactive power



Real-time processing	Ship
Real-time simulation	Shoot-through
Reconfigurable resonant network	Shore-to-ship charging
Regenerative power	Short circuit
Regulation	Short circuit current data exchange
Regulators	Short-term
Reinforcement Learning	Shunt current
Relative Gain Array	Shunt resistor
Reliability	SiC MOSFET
Reluctance drive	SiC oscillation
Remote sensing	Signal processing
Renewable energy systems	Silicon Carbide (SiC)
Repetitive control	Silicone gel
Residual current device	Silver sintering
Resonant converter	Simulation
Resonant peak damping strategies	Sine filter
Reverse recovery	Single Active Bridge
RIE	Single phase system
Ripple minimization	Single-event burnout
Ripple port	Single-Inverter Multi-Motor
Road vehicle	Single-stage
Robotic-arm charger	Single-stage LLC AC-DC converter
Robotics	Singular perturbation methods
Robust control	Six-step
Robustness	Sliding mode control
Root trajectory	Small-signal
Rotor eccentricity cogging	Small-signal stability
Rotor temperature sensing	Smart gate drivers
Safety	Smart grids
Saturation	Smart loads
Scalable	Smart meter
Scalable control	Smart microgrids
Schottky diode	Smart power
Seamless transfer	Smart transformer
Second-Order Generalized Integrator (SOGI)	Snubber
Selective Harmonic Elimination (SHE)	Soft switching
Self-sensing control	Software
Semiconductor device	Software-defined power domains
Sensitivity analysis	Solar cell system
Sensor	Solar field
Sensorless control	Solenoid inductor
Sensorless current sharing	Solid-State
Sensors	Solid-State Circuit Breaker (SSCB)
SEPIC converter	Solid-State Transformer
Series operation	Space
Servo-drive	Space Vector PWM
Shedding and restoration algorithms	S-Parameters
Shielding modeling and methods	Speed control

Spike detection	System integration
Split-source converter	System modeling
Split-source inverter	System-on-Chip Boards
Square-wave operation	Systems engineering
Stability	Teaching
Stability analysis	Technology-readiness level
Stability assessment	teleoperation
Stacked converter	Test bench
Standard	Thermal behavior
Standardization	Thermal cycling
State and disturbance observers	Thermal design
State of charge	Thermal management
State-space	Thermal model
State-space model	Thermal storage
Static rotor unbalance	Thermal stress
Static Synchronous Compensator (STATCOM)	Thermo-electric energy
Static Var Compensator (SVC)	Third harmonic injection
Statistics	Three-phase motor drive
Steady-State Analysis	Three-phase system
Submodule capacitor parameter design	Three-stage generator
Sub-Synchronous Resonance (SSR)	Threshold voltage instability
Super junction devices	Threshold voltage shift
Supercapacitor	Thyristor
Superconducting Magnetic Energy Storage (SMES)	Tight voltage regulation
Superconductors	Time resolution
Supervisory system	Time-Domain Analysis
Supply quality	Time-optimal control
Suppression of displacement current	Time-sharing
Sustainable system	Torque control
Sustainable technology	Torque sharing function
SVC	Torque-to-weight ratio
Switched capacitor	Total harmonic distortion (THD)
Switched reluctance drive	Traction application
Switched-mode power supply	Traction loss minimization
Switching and conduction losses	Transducer
Switching cell	Transformer
Switching frequency control	Transformer arrangement
Switching losses	Transformerless
Synchronization	Transformerless PV inverter
Synchronization stability	Transient analysis
Synchronous Buck Converter	Transient liquid phase die bonding
Synchronous motor	Transistor
Synchronous rectifier	Transmission
Synchronous Reluctance Machine (SynRM)	Transmission line transformer
Synthesis	Transmission of electrical energy
Synthetic inertia	Transport
Synthetic inertia control	Transversal flux motor
System identification	Triangular current mode

Tri-port isolated DC-DC converter	Voltage sag compensators
TS/EMT co-simulation	Voltage sensor
TSEP	Voltage Source Converter (VSC)
T-type inverter	Voltage Source Converters (VSCs)
Two-phase cooling	Voltage Source Inverter (VSI)
Ultra capacitors	Volume reduction
Unbalanced AC grid	VSP3CC
Unbalanced voltages	V-type
Unclamped Inductive Switching	Water transport
Uninterruptible Power Supply (UPS)	Wave energy
V/F control	Wear-out failure
V/Hz control	Wet placement
V2G	Wide bandgap
Vacuum micro-electronic device	Wide bandgap devices
Validation	Wide input voltage range
Variable flux reluctance machine	Wide range operation
Variable resistance	Wind energy
Variable speed drive	Wind-generator systems
Variable Switching Point	Winding topology
Varistor	Wiper motor
Vector control	Wireless control
Vehicle-to-Grid	Wireless Power Transmission
Vibration	Wireless sensors
Vibration suppression	Wound-field flux switching machine
Vienna rectifier	Yokeless and segmented armature (YASA)
Virtual impedance	ZCS converters
Virtual instrument	ZCZVS converters
Virtual prototyping	Zero emission
Virtual Synchronous Generator (VSG)	Zero frequency
Virtual Synchronous Machine	Zero sequence voltage
Voltage control	Zero speed
voltage imbalance of series-connected GaN devices	Zero speed estimation
voltage imbalance of series-connected IGBTs	Zero-voltage overshoot
Voltage ratio	Zero-voltage switching
Voltage recovery	Z-source converter
Voltage regulation	Z-source inverter
Voltage Regulator Modules (VRM)	ZVS converters