

POSTER SESSIONS (ordered alphabetically by author)

Complete design of IPT coil structures for dynamic wireless charging of electric vehicles	M. Alegre
Design of a 100V-28V Switched Capacitor Converter for Space Application	M. Alegre
Single-Phase Single Stage PFC Based on a Novel Floating Capacitor Filter for Electric Vehicle Charger Application	I. Alzuguren
Analysis of MRI test in brain-implanted electronic devices . J. Amores	R. Andreu
Custom wearable for affective computing	M. Astudillo
Analysis and Design of a Radio Frequency Generator for Gridded Ion Technology Thruster	J. Barberá Civera
Optimal power granularity in transformers for electrical charging applications . M. Astudillo	L. Bengochea
GPU-based Deep Neuroevolution for Reinforcement Learning Problems	T. Camacho
SIMBA - Small IPT for IMplantable Biomedical Applications	S. Canton
Design and Implementation of an Electronic Interface for Signal Recording from Neuronal Cultures	L. Clavero
Design and optimization of a Full-bridge converter for space and high-frequency application based on GaN	L. Clavero
3D Thermal Modeling of Inductive Power Transfer Coils Based on Basic Thermal Network for Optimization Analysis	A. Durán & P. Hidalgo
Temperature Prediction of the Magnetic Core Considering the Non-Uniform Flux Distribution	J. Encinas
Design of modular Dual Active Bridge for unmanned WIG vehicle transportation	B. Fernández
Online ML-Based Modeling of Reconfigurable Multi-Accelerator Systems for Dynamic Workload Management	A. García
Design and optimization of PCB-based magnetic components for space and high-frequency applications	P. González
High capacitor charging DC-DC converter based on GaN technology	M. Heredia
Optimization strategies for energy-aware computation offloading in the Extreme Edge of Internet of Things	R. Hernández
Regulator Design For Three-Phase Inverters with Unbalanced Impedances	S. Hernangómez
Internet of Things Technology for Train Positioning and Integrity in the Railway Industry Domain	M. Íñiguez
HW-Accelerated ML-Based Object Identification for Industry 4.	J. López
Open-Source GUI for Fast Prototyping of Magnetic Components Based on Planar Conductors for Space Applications	G. Maldonado
Optimal Power Flow Management in an Electric Vehicle Charging Station	S. Martín
Isolated topologies based on capacitor converters	J. Martínez
Design of advance sensor platform for implantable battery characterization	J. Martínez de la Mata
Design of compact miniaturized implantable antenna for medical brain diseases	N. Mirkovic
Developing a microfluidic device for culturing Biological Neural Networks	X. Mo
Increasing Power Transfer Capability of Wireless Battery Charger Under Misalignment Conditions	D. Molinero & D. Santamargarita
FPGA Based Model Predictive Control with Switching Losses Reduction and Hardware-in-the-Loop of A Direct Resonant Matrix Converter	G. Núñez
Artificial Neural Network Based Thermal Model for a Three-Phase Medium Frequency Transformer	F. Pérez
Isolated DC/DC Converter for RF Generator of a Power Propulsion Unit: Topology Comparison based on GaN Semiconductors	C. Ramos
Blackbox model for DC/DC converters with strong nonlinear dynamics based on accurately switching among local models	A. Redondo
Design of Intensity and voltage sensors for dual active bridge control	D. Ríos
Internet of Things for Secondary Control of DC Microgrids: a Step Towards a Fully Distributed Power System.	A. Rodríguez
Magnetics Optimization for operating in a Wide Frequency Range in a Three-Phase LLC converter	R. Rojo
Miniaturization of a high frequency wireless power transfer device for medical brain applications	A. Sánchez
Post-Quantum Security in LoRa Communication	
Narrow Frequency Span – Ultra Wide Input Voltage Range LLC Converter	
On-line Monitoring of a Medium Frequency Transformer Using Artificial Neural Networks and FEM Simulations	D. Santamargarita & D. Molinero
Blockchain for IoT-based Health Applications	J. Señor
Impact of Post-Quantum Security in the Communications of IoT Edge Deployments	J. Señor
Study of algorithms for smart design of magnetic components	J. Serrano
Affective Computing for fear recognition using physiological signals: A deep learning approach	J. Sun
Enhancing RISC-V Systems on Chip with Coarse-Grained Reconfigurable Architectures	D. Vázquez
Group Authenticated Key Exchange (GAKE) for IoT	A. Vidal
Run-Time Reconfiguration and Fault-Tolerance Mechanisms on PCIe Coprocessor Board	L. Waucquez
Design and Optimization of Integrated PCB Output Filters for Very for Very High-Frequency Applications	L. Zhou

XV CEI ANNUAL MEETING

JUNE 1st - 2nd, 2023

**Enabling Electronic Technologies for the New Challenges in Space**

Topics

Advanced Power Electronic Converters and Systems
 Embedded Intelligence, IoT and Reconfigurable Systems
 Emerging Applications
 Modeling, Characterization and Simulation of Components and Power Converters



CEIUPM
 Centro de
 Electrónica
 Industrial

SHORT COURSES

CEI

Attendees are invited to attend the following short course:

- *Post-quantum security in IoT devices* (10:30 to 13:30 h.)
Coordinators: J. Portilla (UPM) y J. Señor (UPM)
- *Thermal Modelling of Magnetic Components using ANNs* (Preliminar) (11:30 to 13:30 h.)
Coordinators: A. Delgado (UPM) y D. Santamargarita (Universidad de Alcalá)

Registration at CEI Annual Meeting

15:30-16:00

OPENING SESSION

16:00-16:30

Óscar García, ETSII Director
Javier Uceda, CEI Director

PLENARY SESSION

16:30-18:30

PERTE Aerospace and Spanish Space Agency

Miguel Belló Mora (*Spanish Commissioner of PERTE Aerospace*)

Enabling Electronic Technologies for the New Challenges in Space

Arturo Fernández (*European Space Agency - ESA*)

Fernando Gómez Carpintero (*AIRBUS CRISA*)

Javier Moreno (*Thales Alenia Space España- TASE*)

David González (*GMV*)

CEI LAB TOUR AND POSTER SESSION

18:30-20:00

You will have the opportunity to meet our young researchers, exchange interesting ideas and enjoy beverages and food that will be available during the poster session. Do not miss this great opportunity to know us better.

The poster session will be held in the main lab of Centro de Electrónica Industrial (CEI). Find the provisional list of the posters in the last page.

Supporte by  **ROHDE & SCHWARZ**

TECHNICAL SESSIONS

9:00-14:00

TECHNICAL SESSION A

9:00-10:40

SESSION CHAIR: ALFONSO RODRÍGUEZ/REGINA RAMOS

"Internet of Things Technology for Train Positioning and Integrity in the Railway Industry Domain". Rogelio Lorite

"Power electronic for the electric space propulsion: the path to shrink the volume and weight". Guillermo Núñez y Miguel Astudillo

"Blackbox model for DC/DC converters with strong nonlinear dynamics based on accurately switching among local models". Fernando Pérez

"Extreme Fast Charging station for Electric Vehicles". Aleksandra Stanojević (Innsbruck Univ)

"Online ML-Based Modeling of Reconfigurable Multi-Accelerator Systems for Dynamic Workload Management". Juan Encinas

Coffee Break

10:40-11:10

TECHNICAL SESSION B

11:10-12:50

SESSION CHAIR: AIRÁN FRANCÉS/ ANDRÉS OTERO

"Novel Three-Phase to Single-Phase Matrix Converter Modulation Strategy for Bidirectional Inductive Power Transfer". Nikola Mirkovic

"Electrical Model of a Membraneless Micro Redox Flow Battery-Fluid Dynamics Influence". Alberto Bernaldo de Quirós

"Key Aspects of a Compact High-Gain High-Frequency DC/DC Converter: Three-Phase LLC Converter". Daniel Rios

"Enhancing RISC-V Systems on Chip with Coarse-Grained Reconfigurable Architectures". Daniel Vázquez

"3D Thermal Modeling of Inductive Power Transfer Coils Based on Basic Thermal Network for Optimization Analysis". Lucia Clavero

Short Break

12:50-13:00

TECHNICAL SESSION CEI GRANTS PROGRAM

13:00-14:00

"CEI Grants Program Presentation". Eduardo de la Torre

"Advanced Isolated GaN Power Converter". Catalin Ovidiu y Gabriel Maldonado

"Developing a microfluidic device for culturing Biological Neural Networks". Andrés Otero

"Design of an implantable device for brain tumor treatment". Regina Ramos and Miguel Jiménez

"Internet of Things for Secondary Control of DC Microgrids: a Step Towards a Fully Distributed Power System". Alejandro Redondo

At 14:15 h. photo group at the ETSII Main entrance

COCKTAIL will be served in the Sala de los Retratos at 14:30 h.