POSTER SESSIONS

ADVANCED POWER ELECTRONIC SYSTEMS

A Three-phase 10 kW VIENNA Rectifier for Aircraft Application With Variable Line Frequency — **U. Borović**
Analysis and comparison of indirect power in IMMC and standard inverters — **C. Li**
Design and Test of a low-power voltage multiplier for space applications — **R. Portugal**
High Efficiency High Bandwidth Four-quadrant Fully Digitally Controlled Tracking Power Supply Based on GaN — **V. Lazarević & I. Zubitur**
Highly Efficient, Low Volume, Very Compact Two-Stage Grid Connected Inverter for 1500V PV Systems — **B. Stevanović**
IEEE IFEC Challenge 2017 - Our take on the Highly Efficient (97%) and High-density (15kW/dm3) isolated DC-DC converter for server applications — **I. Zubitur**
Impact of GaN in resonant switched capacitor for PV applications — **V. Toral & D. Serrano**
Series resonant full-bridge converter with synchronous rectification and series-parallel configuration, operating at constant frequency for 10kW aircraft application — **Y. Bouvier**
Soft-switching transitions in a PV inverter for the Google Little Box Challenge specifications — **D. Serrano & R. Ramos**
Synchronous Buck with paralleled GaN for Space Applications — **N. Alonso**

EMBEDDED INTELLIGENCE

Distributed ANN architecture over WSN — **D. Aledo**
Feature Extraction for Machine Learning Applied to Vehicle Recognition: an FPSoC Implementation — **C. Blanco & R. Mariño**

HIGH EFFICIENCY RF AMPLIFIERS

RF Front End — **W. López**
Underwater Optical Communications — **A. Hu**

INTERNET OF THINGS

All-in-One: Advanced integrated IoT platform for smart traffic monitoring and pattern recognition — **J. Zornoza**
Bag-of-features Techniques for category classification in Border Surveillance system — **K. Bellazi**
Exploring PCA Inference Design in FPSoC for Expert Sensors — **R. Mariño**
Security strategy and implementation for iot in the edge — **F. Villa**
Smart Self-Adaptive Clustering Technique for Collaborative Sensing in Industrial IoT Applications — **J. Zornoza**
Test-bed For Rail On-board WSN Deployment — **A. Gª Gener**

MODELING AND SIMULATION OF POWER CONVERTERS

Equivalent parameters of conductors to obtain an equivalent layer to accelerate Finite Element simulations of wireless power transfer systems — **A. Delgado**
Fast 2D/3D Finite Element Thermal Simulation of Magnetic Components by the use of Winding Equivalent Layers — **G. Salinas**
Modeling of dynamic losses for new semiconductor devices for future train power converters — **M. Soria**
Wireless power transfer for electric vehicles — **S. Gª Guzmán**

RECONFIGURABILITY

A Network Distributed Hyperspectral Unmixing Algorithm through HW/SW Execution — **A. Ortiz A. Rodríguez**
A Setup to Evaluate Dynamic Resource Management Policies in FPGA-Based High-Performance Embedded Computing — **A. Rodríguez**
Boosting FPGA reconfiguration capabilities to enable just in time hardware composition — **R. Zamacola**
Hardware Adaptation Layer for Monitoring Reconfigurable Computing Architecture — **L. Suriano**
Power Supply System for New Generation FPGAs in Space Applications — **D. de la Hoz**
Real-Time fault mitigation of transient and permanent errors in heterogeneous platforms — **A. Pérez**

SMART GRIDS

Advanced control techniques for DC micro-grids — **M. Jiménez**
Analysis of the Constant Power Load Assumption in the Stability Analysis of DC Microgrids — **H. Mazaheri**
Large-signal black box modeling of bidirectional battery charger for electric vehicles — **A. Naziris**
Modeling Electronic Power Converters in Smart DC Microgrids — **A. Francés**

SPECIFIC APPLICATIONS

A self-adapted wireless charging systerm to deliver maximum power — **L. Shi**
E-bike: Testing circuit for electrical bike's stator — **G. Bertocchi**
Low Energy Highly Implanted Deep Brain Stimulation — **M. Jiménez & J.A. Cobos**
Mechanical enegy harverster for ontrack wireless communication equipment — **L. Shi**
Subjective video quality assessment tool for cloud gaming — **D. Tena**
Virtual and real online multiplayer gaming (Racing Drones) — **D. Tena**

XIoT

11 Annual Meeting Centro de Electrónica Industrial

Special Session on

Industrial Electronics for Internet of Things

Final Program

Topics

- Advanced Power Electronic Systems
- Embedded intelligence
- High Efficiency RF Amplifiers
- Internet of Things
- Modeling and simulation of Power Converters
- Reconfigurability
- Smart Grids
- Specific Applications

UNIVERSIDAD POLITÉCNICA DE MADRID
E.T.S. Ingenieros Industriales

CEI UPM
Centro de Electrónica Industrial

POLITÉCNICA
"Ingeniamos el futuro"

Short courses 9:00-13:00

On Thursday morning you are invited to attend a short course.

Three short courses are offered, Course A is running in parallel with Courses B and C that run sequencially.

Course A (9:00-13:00 h.)

Boosting Flexibility and Computing Performance in Dynamically Reconfigurable FPGA-Based Embedded Systems (PROVISIONAL TITLE)

Andrés Otero & Alfonso Rodríguez (CEI)

Course B (9:00 -11:30 h.)

GaN transistors as an enabler of high performance power electronics

Miroslav Vasic & Pedro Alou (CEI)

Course C (11:45-13:00 h.)

EMI/EMC pre-compliance and debug with a modern oscilloscope

Víctor Medina (Rohde&Schwarz)

Thursday, April 19th

Aula D

Registration at CEI Annual Meeting 15:30-16:00

Opening Session 16:00-16:30

UPM Vice-rector for Research, Innovation & Doctoral Studies

ETSII Director

CEI Director

Panel debate 16:30-18:30

IoT OPPORTUNITIES AND CHALLENGES FOR INDUSTRIAL ELECTRONICS

Phil Harris
United Technologies Research Center
Francisco Parrilla
INDRA
Asunción Santamaría
CECINT-UPM

Visit CEI facilities. Poster Session 18:30-20:30

The poster session will be held in the main lab of Centro de Electrónica Industrial (CEI). You will have the opportunity to discuss with the researchers and to see the latest CEI outcomes. Beverages and food will be available during the session.

Find the list of the posters in the last page.

SUPPORTED BY

Special Session on

Industrial Electronics for Internet of Things

Aula C

Friday, April 20th

CEI researchers will present some current activities at CEI and some Industry partners will show our joint research and strategy

TECHNICAL SESSION: Oral (I) 9:00-11:15

SESSION CHAIR: MIGUEL JIMÉNEZ / JORGE PORTILLA

Modeling Electronic Power Converters in Smart DC Microgrids	A. Francés (CEI)
Exploring PCA Inference Design in FPSoC for Expert Sensors	R. Mariño (CEI)
High Efficiency High Bandwidth Fully Digitally Controlled Tracking Power Supply System Based on GaN Transistors	V. Lazarević (CEI)
Electric Aircraft Technologies. Research Trends and Challenges	V. Valdivia (UTRC, Ireland)
Impact of GaN semiconductor technology on DC/DC converters for Space (TBC)	E. Lapeña (CRISA)
Runtime Adaptive Hardware/Software execution in complex heterogeneous systems	L. Suriano (CEI)

COFFEE BREAK 11:15-12:00

TECHNICAL SESSION: Oral (II) 12:00-14:15

SESSION CHAIR: JESÚS A. OLIVER / GABRIEL MUJICA

All-in-One: Integrated low-cost vehicle count and identification system	Juan José Vinagre (GB2S -UPM)
Mechanical energy harverster for on-track Wireless communication equipment	Juan R. Arias (UPM)
Fast Magnetic and Thermal models for 3D Finite Element Simulation of Wireless Power Transfer Coils	G. Salinas & A. Delgado (CEI)
Security strategy and implementation for iot in the edge	F. Villa (CEI)
Piezolectrics for Underwater Applications	D. Alonso (CEI)
Highly Efficient, Low Volume, Very Compact Two-Stage Grid Connected Inverter for 1500V PV Systems	B. Stevanović (CEI)

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

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