HOSTING OFFER

Simultaneous multifrequency electrical impedance spectroscopy for diagnosis of Li-ion battery cells

Supervisor (Researcher Profile):

Name: Juan Manuel Carrillo Calleja
Department/Unit/Centre: Electrical, Electronic and Automation Engineering

Dr. Carrillo Calleja is Head of the Department of Electrical, Electronic and Automation Engineering and a member of the Electronic Technology Research Group at the University of Extremadura. He has authored more than 100 peer-reviewed scientific publications, including journal articles (>40) and conference papers (>70), and has participated in numerous regional, national, and European research projects, as well as in multiple research and development contracts with industry.

Research interests and expertise
His research interests and expertise comprise low-voltage analog and mixed-signal integrated circuit design for electrical impedance spectroscopy, IoT, energy harvesting, and biomedical applications.

What we offer (Research support):

Research facilities
Research laboratory with a large variety of electronic instrumentation, including virtual instrumentation, and prototyping tools.
EUROPRACTICE membership, including access to software tools for the design of integrated circuits and to foundries in different technology nodes.

Networking possibilities & external relations:
The hosting group has links with international institutions such as Universtà degli Studi di Pavia, Università degli Studi di Parma, Università La Sapienza, and Texas A&M University, among others. In Spain, the group has a strong link with Universidade de Santiago de Compostela, Universidad Pública de Navarra, Centro Nacional de Microelectrónica – CSIC, Universidad de Sevilla, Universidad de Zaragoza, and Universidad Politécnica de Cartagena, among others.

Project idea/position (scientific requirements, topic, discipline):

The objective of this proposal is to develop a monolithic prototype capable of performing simultaneous multifrequency electrical impedance spectroscopy for assessing the state-of-health and state-of-charge of lithium-ion cells. The device will be implemented using CMOS technology and integrated into a complete system featuring an industrial communication protocol, enabling its use within a distributed battery management system (BMS) for battery packs.

What we expect from you (requirements, preferences):

Our preference would be to participate in a **European Fellowship** application.

Furthermore, you should:

- Have a PhD degree at the time of the deadline for applications (**Sep 2026**).
- At the call deadline, you must not have more than 8 years full-time equivalent experience in research, measured from the date of award of the doctoral degree
- Have not been in Spain for more than 12 months in the 3 years before the call deadline.
- Your profile should comply with the requirements identified in the call. Please, visit the call text and read requirements carefully.

Documents to be submitted and deadline

Applicants should submit his/her CV and a letter of motivation latest until **April 30th 2026** to amelia.aguilar@fundecyt-pctex.es with subject line **MSCA-PF-2026 and indicating the Hosting Offer title.**