

Expression of Interest-UPM Supervisor

Marie Skłodowska Curie Action–Postdoctoral Fellowship 2026 (MSCA-PF-2026)

Supervisor Name	Juan Parras Moral	
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Department /Institute / Centre Name/Location	Grupo de Aplicaciones del Procesado de Señal (GAPS), Señales, Sistemas y Radiocomunicaciones (SSR) / Information Processing and Telecommunications Center (IPTC), ETSI Telecomunicación, Madrid	
Research Area	Information Science and Engineering (ENG) Mathematics (MAT)	G1-Computer science and informatics M2-Applied Mathematics
Research team/group	<p>The Grupo de Aplicaciones en Procesado de Señal (GAPS) is a research group with a considerable experience in signal processing research focused on theory and applications, including speech, health, navigation and security. We have made recent contributions to fields such as causal inference, explainable AI, multimodal survival analysis, synthetic data generation, federated learning and few-shot learning, to mention some. The group has considerable experience on national and international research projects, including several ongoing European projects, which allows us to have a network of national and international partners. More details on the webpage: https://www.gaps.ssr.upm.es/</p>	
Keywords	Interpretable Artificial Intelligence, Solid State Batteries, Mathematical Modelling, Few-shot learning, Meta-learning	
Research Focus	<p>AI-driven Non-Invasive Diagnostics for Solid-State Batteries</p> <p>Solid-state batteries (SSBs) are a key technology for next-generation energy storage, yet the lack of reliable, non-invasive diagnostic tools limits their large-scale deployment. Impedance measurements contain rich information about internal electrochemical interfaces, but extracting robust and interpretable indicators of degradation from these data remains an open challenge.</p> <p>This research line aims to develop advanced AI-based methods for in-situ diagnosis of SSBs using impedance data. The focus is on models operating under realistic constraints, including limited data, variability across conditions, and interpretability requirements. Potential directions encompass explainable AI, few-shot and meta-learning.</p> <p>The topic is intentionally broad, allowing postdoctoral researchers to contribute expertise in machine learning, applied mathematics, signal processing, or electrochemical modeling, while collaborating alongside experimental partners at CSIC, specialized in SSBs.</p>	
Applications: documents to be submitted and deadlines	Candidates must send, via e-mail, their CV, letter of motivation and two letters of reference before 28 th April 2026 to j.parras@upm.es , clearly indicating in the mail subject “EOI MSCA PF 2026”.	