

Expression of Interest-UPM Supervisor

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

Supervisor Name	Rubén Abbas	
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Department /Institute / Centre Name/Location	Department of Energy Engineering / Universidad Politécnica de Madrid	
Research Area	Information Science and Engineering (ENG)	Physics (PHY)
Research team/group	<p>The Thermal Energy for Sustainability (TE4S) research group focuses on applied thermal engineering, spanning component and system design, numerical analysis, and experimental validation. Its core areas include concentrating solar technologies, hydrogen production, thermal energy storage, turbomachinery, advanced power cycles, and energy system modelling. TE4S demonstrates strong innovation leadership with over 50 patents, more than 300 peer-reviewed publications, and nearly 50 PhD theses in under 20 years. These results stem from projects funded by Spanish and regional governments, the European Commission, and the U.S. Department of Energy, alongside close collaborations with institutions such as MIT, IASS-Potsdam, Sandia National Laboratories, and industrial partners.</p> <p>More information: https://short.upm.es/8a3zb</p>	
Keywords	FEM-CFD-electromagnetic coupling; Electrified Thermal Energy Storage; Power-to-Heat; Industrial decarbonization	
Research Focus	<p>Induction heating of PBTES system</p> <p>Electrified thermal energy storage systems are required to allow power-to-heat solutions that can be used both as a decarbonization tool and as a grid capacity asset to manage highly variable renewable energy sources. UPM has developed a patented concept consisting in an induction heating packed bed thermal energy storage system, where the storage can be charged by induction. Such a device can be used with different fillers, such as magnetite, but also probably with some slag materials. The proposed postdoctoral research project would consist in the development of a numeric model to evaluate the induction heating performance for different materials, in addition to a techno-economic and environmental impact assessment of the device.</p> <p>Experience in thermal modelling, CFD and FEM is encouraged.</p>	
Applications: documents to be submitted and deadlines	<p>CV, motivation letter, 2 recommendation letters</p> <p>Deadline for submitting these documents to the supervisor: 24/04/2025</p>	