

**Marie Skłodowska Curie Action –Postdoctoral Fellowship 2024
(MSCA-PF-2024)**

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Department /Institute /Centre	Name	Thermal Energy for Sustainability (TE4S) ETSI Industriales
	Address	c/ José Gutiérrez Abascal, 2
	Province	Madrid
Research Area		Information Science and Engineering (ENG)
Brief description of the Centre/Research Group		<p>The Thermal Energy for Sustainability (TE4S) research group specializes in applied thermal engineering from component and system level design to numerical analysis and experimental stages. Key areas of focus include concentrating solar technologies, hydrogen production, thermal energy storage, turbomachinery, advanced power cycles, and energy system modelling.</p> <p>TE4S is firmly committed to technological innovation, as demonstrated by the acquisition of over 50 patents, a significant number of which have international recognition, the publication of more than 300 research articles in leading journals, and almost 50 Ph.D. thesis in less than 20 years. These achievements are the result of participation in numerous projects funded by the Spanish and regional governments, the European Commission and the U.S. Department of Energy. TE4S has developed strong alliances with renowned academic institutions and laboratories such as MIT, IASS-Potsdam, or Sandia National Laboratories. In addition, frequent collaborations with industry and private companies in the energy, power, and propulsion sector boost TE4S innovation leadership.</p> <p>For further information, please visit: TE4S staff members: https://short.upm.es/qwmqx TE4S scientific production: https://short.upm.es/8a3zb</p>
Project description		<p>The project is aimed at comprehensively analyzing bubble interfacial flow within liquid metals, with a focus on enhancing methane pyrolysis reactors for efficient hydrogen production without CO2 emissions. The general objective is to characterize the fluid dynamics of bubble formation and ascension in liquid metals, and specifically, to develop and validate models for bubble dynamics.</p> <p>The project will combine numerical and experimental approaches, starting with the development of models and their validation through experimental data. The experimental work will initially use standard liquids like water before moving on to high-temperature liquid metal environments. The project's final phase will focus on applying the developed methodologies and insights to improve the efficiency of methane pyrolysis reactors, with potential collaboration of renowned institutions like MIT to continue the current collaboration with Universidad Politécnica de Madrid.</p>
Applications: documents to be submitted and deadlines		CV, motivation letter, 2 recommendation letters, Eligibility Self-declaration. Deadline: 30/04/2024