

Marie Skłodowska Curie Action –Postdoctoral Fellowship 2023  
(MSCA-PF-2023)

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<b>Department /Institute /Centre</b>	<b>Name</b>	Instituto de Energía Solar
	<b>Address</b>	Avda. Complutense, 30.
	<b>Province</b>	Madrid
<b>Research Area</b>	Information Science and Engineering (ENG)	
<b>Brief description of the Centre/Research Group</b>	<p>The Solar Energy Institute at Technical University of Madrid (IES-UPM) (<a href="http://www.ies.upm.es">www.ies.upm.es</a>) was founded in 1979 and over the last four decades has been a catalyst positioning Spain at the forefront of PV technology. Both basic research and applied research on photovoltaic cells and systems, are the main activities carried out at IES-UPM. The IES-UPM is formed by a group of around 40 Professors and a variable number of PhD students and postdocs.</p> <p>Within IES-UPM, our research group focuses on the development of thermophotovoltaic devices for thermal to electric energy conversion in waste heat recovery and energy storage applications. The group is currently formed by 4 professors, 3 PhD students, 1 postdoc and several Master students (variable number). Members of this group have founded a startup (<a href="http://www.thermophoton.com">www.thermophoton.com</a>) to commercialize these systems. In 2022, our group got the “EU Radar Innovation Prize” under kick starter category for the development of thermophotovoltaic batteries (<a href="https://rb.gy/6dcawm">https://rb.gy/6dcawm</a>). We have full access to the clean room facilities and the optoelectronic characterization lab at IES-UPM. We also established a unique laboratory for the characterization of thermophotovoltaic devices (cells and modules) at high temperatures.</p>	
<b>Project description</b>	<p>Our group currently coordinates the following two EU projects to develop energy storage systems: THERMOBAT (<a href="http://www.thermobat.eu">www.thermobat.eu</a>) and SUNSON (<a href="http://www.sunson.eu">www.sunson.eu</a>). Both projects develop latent heat thermophotovoltaic batteries that store energy at extreme temperatures (&gt;1000°C) and convert heat back into electricity on demand using thermophotovoltaics. We are mostly focused on the development of the thermophotovoltaic devices, which are similar to solar cells, but are manufactured using low-bandgap semiconductors (like Ge or InGaAs) so that they can absorb infrared radiation. We specialize in the design, manufacturing, and characterization of these devices. In the past few years, we have also established novel device concepts like the hybrid thermionic-photovoltaic converter or the bifacial thermophotovoltaic cell. We have well established collaboration in the EU. Besides of the partners in the EU projects, we regularly collaborate with CNRS in France (for simulation of near-field thermal radiation), CNR in Italy (for developing thermionic coatings), and UPC (for the development of germanium devices). The MSCA candidate could be incorporated in any of these lines to support in the design, fabrication and/or characterization of these devices. The</p>	



## Expression of Interest – UPM Supervisor

	following link list some of the publications by our group: <a href="https://orcid.org/0000-0001-5964-3818">https://orcid.org/0000-0001-5964-3818</a>
<b>Applications: documents to be submitted and deadlines</b>	CV Motivation letter (1 page maximum) Name and contact of three referees Deadline: 30/04/2023