

Expression of Interest-UPM Supervisor

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

Supervisor Name	José L. OCAÑA	
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Department /Institute / Centre Name/Location	UPM Research Group on Laser Engineering and Applications Dept. of Applied Physics and Materials Engineering (ETSII-UPM)	
Research Area	Information Science and Engineering (ENG)	Mathematics (MAT) Physics (PHY) Chemistry (CHE)
Research team/group	<p>The UPM Research Group on Laser Engineering and Applications (UPM-GRIAL) is a research unit with a wide experience in the conduction of R&D&I Projects in the field of laser processing applications. In particular, in the field of high-intensity laser matter interaction, application of advanced treatments and micromanufacturing applications. The Group hosts important specific laser and robot facilities providing a convenient environment for pre- and post-PhD career development. Specifically, Laser Shock Processing, Laser Surface Micro-Nano Functionalization, Laser Additive Manufacturing, materials microstructural characterization and materials testing are fields in which an important number of PhD students and postdocs have developed their research.</p>	
Keywords	Laser; shock waves, materials behaviour; residual stresses; fatigue; corrosion; surface functionalization	
Research Focus	<p>Developing Laser Shock Processing as a method for the mechanical strengthening of laser-assisted additively manufactured components (LSP-AM-STRENGTH)</p> <p>A research line is proposed in the field of high-intensity laser treatment of high added-value metallic materials (i.e. high-grade stainless steels, titanium alloys, etc.) for the induction of subsurface residual stress fields as a post-processing method after their consolidation by laser-assisted directed energy deposition additive manufacture.</p> <p>The purpose of the proposed research is the exploration of the suitability of Laser Shock Processing for the mechanical strengthening of laser-assisted additively manufactured components by introduction of compressive residual stresses fields and concurrent microstructural refinement. The first promising results in this line have been obtained, but a more extensive and systematic study referred to key strategic materials is needed.</p>	
Applications: documents to be submitted and deadline	<p>Send to the supervisor: CV Letter of Motivation and Expectations 2 Letters of Reference</p> <p>Deadline: April 30th 2026</p>	