

## Expression of Interest-UPM Supervisor

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

<b>Supervisor Name</b>	Giannicola Scarpa
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<b>Department /Institute / Centre Name/Location</b>	Department of Information Systems, Technical University of Madrid, Spain
<b>Research Area</b>	Information Science and Engineering (ENG) Mathematics (MAT) Physics (PHY)
<b>Research team/group</b>	Giannicola Scarpa is based at UPM, focusing his research on quantum information theory, with links to game theory and the foundations of physics. He has taken part in European projects on randomness and computability, and is currently involved in two national projects. He is forming a research group on quantum mathematics, algorithms and machine learning, planning to host seminars and international visitors. He has connections with well-known institutions such as NYU, CWI, UCL and UAB, and an ongoing collaboration with the MathQI group at UCM. (Web: <a href="https://sites.google.com/site/giannicolascarpa">https://sites.google.com/site/giannicolascarpa</a> ) The Campus Sur of UPM offers a vibrant environment with engineering schools, research centers, a large library, a student residence, and excellent public transport, all surrounded by Nature.
<b>Keywords</b>	Quantum Information, Game Theory, Epistemics.
<b>Research Focus</b>	<b>Quantum Information as a resource in Game Theory</b> Quantum technologies are not science fiction anymore. Communication devices use quantum information to create new kinds of correlations, and microscopic phenomena can now influence the macroscopic world. We want to know how large-scale interactions will change when rational agents with conflicting interests will use quantum tech. We model these as games and aim to develop mechanisms and mediation strategies for realistic situations. We recently published a framework [ <a href="https://doi.org/qqxw">doi.org/qqxw</a> ] to properly model quantum resources in games, and we proved the Agreement Theorem, a fundamental epistemic property of agents who observe quantum systems [ <a href="https://doi.org/qqxx">doi.org/qqxx</a> , <a href="https://arxiv.org/abs/2511.21258">arXiv:2511.21258</a> ]. We are now searching for new talent from either mathematics, physics, economics or theoretical computer science, to help us develop our ideas in new directions, whether finding new applications or proving more fundamental properties of how rational agents interact with the quantum world.
<b>Applications: documents to be submitted and deadlines</b>	Applicants should send their CV, a one-page letter of motivation, and provide two academic contacts who are willing to have a short phone conversation about the application. Deadline: April 26 <sup>th</sup> , 2026. Applications will be considered on a rolling basis.