



**MSCA Postdoctoral Fellowships:
Proposal writing bootcamp at FEUP
Postdoctoral Fellowship
Marie Skłodowska-Curie Actions**

2nd edition

SUPERVISOR INFORMATION	
First and Last name	Lino Manuel Serra Maia
URL of supervisor webpage	https://sigarra.up.pt/feup/pt/func_geral.formview?p_codigo=487520
Department	Department of Civil and Georesources Engineering
Field(s) of research	Concrete and cement-based materials
PROJECT PROPOSAL	
Title (optional)	Concrete and cement-based materials – a contribution to improve sustainability in construction
Brief project description	
<p>Concrete and cement-based materials play a major role in advancing sustainability in construction. By integrating eco-friendly alternative powders and recycled aggregates, these materials help reduce carbon emissions, minimize waste, and decrease the extraction of virgin raw materials. Innovations like self-healing concrete and permeable pavement enhance durability and reduce resource consumption. Energy-efficient production methods and carbon capture technologies further mitigate the environmental footprint of cement. Incorporating green certifications and lifecycle assessments ensures alignment with sustainability goals. As global construction demands rise, prioritizing sustainable concrete solutions fosters resilient, low-impact infrastructure, addressing climate challenges while supporting economic growth and environmental preservation.</p> <p>Among other aspects, the main topics of the proposal are:</p> <ul style="list-style-type: none"> • Development of compositions for sustainable applications • Life cycle analysis • Replacing cement with alternative powders • Replacing conventional aggregates with recycled aggregates • Thermal mortars • Mixtures for 3D printing • Limitations and changes in standards 	