



SUBLime

Sustainable Building Lime
Applications via Circular Economy
and Biomimetic Approaches



OPEN PhD POSITION in European Training Network

We are looking for a dedicated and highly motivated Early Stage Researcher (ESR), who will join our team to craft the future of lime mortars/plasters in new construction and conservation of the built heritage.

SUBLime description (4 years ETN project starting February 2021)

Lime is one of the earliest industrial commodities known to man and it continues to be one of the essential building blocks of modern Society. The global lime market is anticipated to approach the value of 44 Billion Euros by the end of 2026 and resulting in various growth opportunities for key players. The SUBLime network aims to develop the most advanced technology in lime-based materials modelling and characterization for industrial use that will go beyond the limitations of existing solutions in new construction and conservation in the built heritage. It is dedicated to recruit and train fifteen PhD students in multiple scientific and engineering fields towards a better understanding and development of sustainable innovations in both added functionalities and sustainability aspects in lime mortars and plasters, strongly based on novel biomimetic and closed loop recycling approaches. The cross-disciplinary approach throughout the SUBLime value chain, leveraging the knowledge of the academic (6) and industrial members (11), such as lime producers, mortar/plaster/block producers, and end-users for the prioritization of industrial needs, will dramatically increase the transfer of scientific knowledge to the lime-consuming industries in the EU.

ESR7 – UMINHO

Fresh properties and early age behaviour of lime-based mixtures for masonry

Objectives: To understand and describe the current practices of construction of lime-based mortars in the European area, with focus on actual industry testimonials, and with focus on application processes and the relevant important properties at both fresh stage and early hardened stages. To gather a representative set of materials and promote the necessary experimental research that confirms the differences felt within Europe in this concern, and make a systematization. The breadth of the study on existing practices that is already very challenging, will be further widened by a connection with the increasingly important field of digital fabrication, by targeting specific studies towards the feasibility of lime-based mortars in such context. It is expected that very positive insights are brought about in this unexplored field, in view of the acknowledged improved fresh properties of mortars in lime binders included. This ESR7 will also interact directly with other ESR's operating in the scope of WP2 and WP3, with teamwork being conducted towards the adequate tailoring of the mixes in view of the important fresh and early age properties.

Expected Results: The expectable results comprise: (a) database on existing practices for mortar/plastering mortars in masonry; (b) explaining systematic guidelines; (c) rules for mixing for 3D printing or other digital fabrication methods; (d) tailoring of mixes in WP2, WP3 towards applicability aspects.

Keywords: fresh behaviour, lime, mortar, masonry, digital fabrication.

Applicant Profile: Master level in Civil Engineering or related field, ideally with background in experimental research. Excellent communication skills (both written and oral) in English.

PhD main locations: The recruited ESR is given the opportunity to conduct 3 years of PhD studies at [ISISE](#) (Institute for Sustainability and Innovation in Structural Engineering) from the [University of Minho](#) but also to visit other network partners for secondments ([Sievert](#), [Danish Technological Institute](#), [Technische Universität Darmstadt](#)), and to attend the training events of the network.

Main contacts:

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More details about SUBLime project, requirements for the candidates and recruitment procedure: www.sublime-etn.eu/jobs/

www.sublime-etn.eu