



Hosting offer for Marie Skłodowska-Curie Postdoctoral Fellowships (PF) 2022 at University of Cyprus / Research group Ledra and Building Materials Labs

[MSCA Postdoctoral Fellowships](#) are individual research grants offering excellent postdoctoral researchers the chance to develop their skills by means of international mobility. Through the implementation of an original and personalised research project, MSCA Postdoctoral Fellowships aim to foster excellence through training and mobility and to equip researchers with new skills and competences in order to identify solutions to current and future challenges.

University of Cyprus / Ledra and Building Materials Labs invites motivated postdoctoral researchers to jointly prepare an application for the [MSCA-PF-2022 call Marie Skłodowska-Curie Postdoctoral Fellowships](#) call ([MSCA-PF-2022](#)) with them as host organisation.

Description of Hosting organisation/group

The Building Materials (BM), and Ledra Laboratories of the Department of Civil and Environmental Engineering (CEE) at the University of Cyprus are fully equipped to EN Standards and have actively participated in a number of national and international research projects to-date. The BM Laboratory has all the necessary equipment for the testing of soils, mortars and masonry materials. Pan-type concrete mixers with volume capacities 100 L and 300 L are also at the disposal of BM laboratory researchers. An automatic grinding machine and a vertical steel capper apparatus are additionally accessible for processing specimens, in order to ensure flatness of surfaces. Thermal conductivity measurements can further be performed at the BM laboratory, using an ISOMET heat transfer analyzer. Curing of specimens under controlled conditions is facilitated by ventilated ovens and climatic chambers, while the temperature and humidity at the various areas of the Laboratory are continuously monitored by environmental sensors. Available weight and length measuring devices include precision scales, Vernier calipers and micrometers.

The BM Laboratory also has state-of-the-art equipment for the mechanical testing of materials and large-scale structures. A Controls Advantest 9 servo-hydraulic press with a maximum loading capacity of 5000 kN and a Lloyd LR300K mechanical press that can be equipped with 1, 10 and 300 kN load cells are available. Both machines are fully equipped with all the necessary accessories and jigs for performing force- and displacement-controlled compression and bending tests on bricks, mortars and masonry assemblages. For monitoring displacements and deformations during the execution of loading tests, BM laboratory is equipped with transducers, linear potentiometers, extensometers, strain gages and dial and digital displacement gages. Data acquisition systems, which can be connected to all aforementioned testing devices, and which will be used for recording both the loads exerted and the deformations induced during the experimental procedures, are also available.

Ledra Laboratory is fully equipped with cutting-edge analytical instruments for the physico-chemical characterization of materials. The infrastructure of the Laboratory includes XRD, ED-XRF, DTA-TG, DRMS, MIP, SEM-EDS devices and stereoscopic and polarising microscopes.

<https://www.ucy.ac.cy/ledra/en/>

Topics/expertise

Characterization, reproduction and optimization of historic (lime and/or gypsum) mortars from Cyprus

In this project, the postdoctoral candidate will investigate several lime and/or gypsum mortars from Cyprus (samples to be provided by the HO), aiming at their reproduction and optimization for use both in vernacular and contemporary architecture. The historic samples will first be thoroughly characterized using a range of standardized and other (analytical) techniques available in the HO labs. The work will then proceed with the reproduction and optimization of a series of mortar mixtures for use either as plasters or jointing materials in restoration and contemporary architecture projects. Emphasis will be placed on the use of additives for the enhancement of the physico-mechanical and durability properties of the lab mixtures. The interplay between the fresh mortar and several local porous substrates will also be investigated, whilst pilot applications either in the lab or in a relevant environment will further be carried out.

Potential supervisor: Professor Ioannis Ioannou

Dr. Ioannis Ioannou is a Professor in the Department of Civil and Environmental Engineering at the University of Cyprus. He holds a B.Sc. Hons in Construction Management (1999) and a Ph.D. in Building Engineering (2002) from the University of Manchester Institute of Science and Technology (UMIST). Prior to his appointment in the Department of Civil and Environmental Engineering at the University of Cyprus (August, 2005), Dr. Ioannou was a Visiting Lecturer in the same Department for two years (2003-2005). He also worked as a Research Assistant at the University of Edinburgh (2002-2003). Dr. Ioannou's main research interests focus on the physicochemical characterization of traditional and other building materials (e.g. stones, mortars, earth bricks, aggregates), capillary liquid transport in porous media, mechanisms of building stone decay, salt crystallization phenomena, weathering and conservation of ancient monuments and buildings and design of environmentally-friendly and energy-efficient composite building materials. He is heading the Building Materials and Ledra Laboratories and he has been involved, either as a coordinator or a collaborator, in a number of national and European research projects, the budget of which exceeds €3,500,000. Through these projects he has established a network of local and international collaborators from academia, public departments and the industry. His work has been published in refereed journals and conference proceedings. Dr. Ioannou is a Senior Member of RILEM and a Member of the Cyprus Technical Chamber. He is also actively involved in several National Technical Committees of the Cyprus Organisation for Standardisation (CYS).

Your profile

- Expected qualifications/expertise of the candidate: The candidate should have a relevant research background and expertise in the use of scanning electron microscope (SEM), XRD and TG/DTA.
 - Please specify the required PhD degrees if applicable Geology, Chemical Engineering, Civil Engineering, Archaeology, Materials Science.
- You must have a completed PhD at the time of the call deadline (14 September 2022).
- Candidates must have a maximum of 8 years full-time research experience from the PhD award date until September 14, 2022. Periods of inactivity in research (e.g. unemployment, periods of employment outside research, parental or sick leave) do not count towards the time of research experience.

- For European fellowships, candidates can be of any nationality and must not have resided or carried out their main activity (work, studies, etc.) in Cyprus for more than 12 months in the 36 months immediately before September 14, 2022.
- Highly motivated candidate with an excellent research track record appropriate to career stage, as evidenced by academic publications and other scientific output.

What we offer

- Support and guidance for the preparation of your MSCA PF proposal
- A stimulating, interdisciplinary environment for high-level research.

For more details contact rss@ucy.ac.cy

How to apply?

Indicate your interest by contacting the host institution as follows:

Please contact Dr. Ioannis Ioannou by email ioannis@ucy.ac.cy with a short CV and motivation to indicate your interest to prepare a MSCA-PF application with him as a supervisor.

After the supervisor agrees to support you as a MSCA-PF candidate, you can start preparation of MSCA PF project proposal and will be supported further by the Research Support Office of the host university.

For more information please contact the MSCA coordinator of the host institution at: rss@ucy.ac.cy