



NATIONAL CENTRE FOR
SCIENTIFIC RESEARCH "DEMOKRITOS"

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PlaCe-ITN
Pre-modern Plasters and Ceramics

INSTITUTE OF NANOSCIENCE AND NANOTECHNOLOGY

Training the next generation of archaeological scientists: Interdisciplinary studies of pre-modern Plasters and Ceramics from the eastern Mediterranean (PlaCe-ITN)

A Marie Skłodowska-Curie Innovative Training Network

Title:	Early-Stage Researcher (ESR10)
Number of positions:	one (1)
Category:	Contract for 30 months
Expected starting date:	June 2022
Place of employment:	National Centre for Scientific Research "Demokritos", Athens, Greece

Description of the ESR position

We are looking for a talented and motivated early-stage researcher (ESR) with a strong interest in historic mortars, architectural conservation, building technology, durability and sustainability of building materials and/or archaeology, to advance the following PhD research project.

Project Title

From Roman to Green cement - Technological developments and social aspects

Field of Expertise

Architecture technology, building technology, materials and archaeological science, architecture, engineering, and cognate fields

Objectives

The successful candidate will explore the influence of different cultures on the architecture and mortar technology in the eastern Mediterranean region. The research project will include a comparative study and an appraisal of the development of building techniques and technological solutions chosen by craftspeople through time. It will also focus on the characterization and assessment of physical, chemical and mechanical properties of mortars produced through the centuries (e.g. changes from pure lime and lime with pozzolan mortars to the systematic production of Roman cement, cocchiopesto (Kourassani), and later, during the 18th century AD, the introduction of modern cement). This will be an interdisciplinary study that will also consider the respective social context(s), materials' use and initial performance requirements, along with potential cultural interactions and imported technological solutions.

Expected Results

- Typology, physicochemical characterization, durability and performance characteristics of mortars with different roles, from built structures of different historic periods, in varying environmental/weathering contexts.
- Insights into mechanisms that affect durability of historic mortars, such as hydraulic reactions and self-healing.
- Social aspects that motivated the technological evolution of mortars from Roman Concrete to the industrial production of modern cement.
- Exploitation aspects of traditional mortar technology towards sustainable modern building materials and conservation of architectural heritage.

Host institution

Ceramics and Composite Materials Research Group, Institute of Nanoscience and Nanotechnology, National Centre for Scientific Research “Demokritos”, Greece (<https://inn.demokritos.gr/>)

It is anticipated that the successful candidate will be registered as a PhD student at KULeuven, Belgium. For admission requirements see <https://set.kuleuven.be/phd>

Starting date: June 2022

Location: Athens (Greece), including a six-month secondment at KULeuven (Belgium)

Candidate Profile

Candidates should hold a degree that entitles them to enroll in a PhD programme, including:

- Bachelor’s degree in a relevant discipline, such as architecture, architectural engineering, civil engineering, chemical engineering, materials science, geology, built conservation or similar
- Master’s degree in a relevant field, such as architectural conservation, built heritage, history of architecture, materials science, conservation science or similar. The master must include a research component.
- Any background will be considered based on personal qualification and complementary experiences. Professional experience in architectural conservation projects or previous research experience are assets, but not formally required.
- Very good knowledge of English is required.

Above all, applicants should be very interested in high-quality scientific research. They should have an independent and well-organized working style, demanding high quality of their own work, well-developed social skills directed towards working in an interdisciplinary team, excellent interpersonal and communicative skills; strong motivation to succeed in scientific research, excellent presentation and scientific writing skills, very good level of English (verbally and written).

The position is open to interested candidates of any ethnicity or gender; it adheres to the European policy of balanced ethnicity, age, and gender. The successful candidate will undertake trans-national mobility. Applicants should not have resided or carried out their main activity (work or study) in Greece for more than 12 months in the 3 years prior to their recruitment. Applicants should be — at the date of recruitment — an ‘early-stage researcher’ (i.e., in the first four years of his/her research career and not have a doctoral degree).

How to apply

The applicants must submit online their application (v.kilikoglou@inn.demokritos.gr and i.karatasios@inn.demokritos.gr) together with the following supporting documents (in English):

- A Curriculum Vitae (6 pages max)
- A letter of motivation (1,000 words max)
- A copy of official academic degree(s) and the corresponding transcripts
- A copy of the most up to-date Master and Bachelor grades in English
- A proof of English proficiency. ESR candidates must demonstrate that their ability to understand and express themselves in both written and spoken.

At least two reference letters from (former) supervisor(s), professor(s) and/or a manager with full contact information should also be sent from the referees to the above addresses, within the deadline.

Deadline for applications

The deadline for applications is **Monday, 30 May 2022**.

Tasks and responsibilities

- Perform independently scientific research within a collaborative international research consortium.
- Perform physicochemical analyses for materials characterization.
- Deliver written reports of your research on a regular basis.
- Prepare a doctoral thesis on the topic of long-term-driving forces and spatial/environmental effects of transport-urbanization planning strategies.
- Publish scientific articles related to the research project.
- Support the valorization of research results into tangible deliverables.
- Participate in and contribute to scientific meetings and conferences, presenting your research to the scientific community.
- Actively participate in outreach activities aimed at promoting your research to a wider audience.
- Collaborate with the other members of the consortium to advance your research and training.
- Participate in the tailored training program.

Contact us

For any enquiries or further information on an informal basis about this position, please contact Dr Vassilis Kilikoglou (v.kilikoglou@inn.demokritos.gr), Head of the Ceramics and Composite Materials Research Group.



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