



SINCERE Conference and Advanced Workshop 2025

Innovative & Sustainable Mortars for Structural and Thermal Retrofitting of 20th Century Buildings

A 3-day international conference and advanced workshop for conservation, architecture and engineering professionals

DATES: July 16-18, 2025

LOCATION: Institute of Nanoscience & Nanotechnology, NCSR Demokritos, Athens, Greece

Day 1 SINCERE Conference

Morning Session I: Sustainability approaches for cement-based repair mixtures

- 09:00-09:15: Introduction to the scope of SINCERE EU research project, main objectives and innovations regarding structural and thermal retrofitting of historic buildings (Ioannis Karatasios - NCSR Demokritos)
- 09:15-09:45: Circularity and recyclability of concrete (Ruben Paul Borg, Igor Semenov - University of Malta)
- 09:45-10:15: Low CO₂ binders and sustainability challenges in mortars for structural and thermal retrofitting applications (Georgia Flessoura, Marios Katsiostis - TITAN Cements)

Morning Session II: Parametric mix-design of retrofitting mortars

- 10:15-10:45: Introduction to the use of modelling for thermal retrofitting mortars (Giacomo Torelli, Farshid Fathi - University of Sheffield)

- 10:45-11:15: Performance simulation (modelling of structural performance, durability and LCA) (Liberato Ferrara, Estefanía Cuenca Asensio - Politecnico di Milano)

Conference Group Picture & Coffee Break (11:15-11:30)

Morning Session II: Structural retrofitting mortars

- 11:30-12:00: Ultra-high-performance fibre-reinforced concrete: composition, properties, and applications (Estefanía Cuenca Asensio, Liberato Ferrara - Politecnico di Milano)
- 12:00-12:30: Self-healing cements and concrete for historic buildings and concrete structures (Eirini Tziviloglou, Ioannis Karatasios - NCSR Demokritos)
- 12:30-13:00: Textile reinforced mortars: materials, design principles, and case studies (Alva Peled, Rotem Haik - Ben Gurion University)

Lunch Break (13:00-14:30)

Afternoon Session I: Thermal retrofitting Mortars

- 14:30-15:00: Hemp mortars: sustainability, thermal benefits, and heritage compatibility (Rotem Haik, Alva Peled - Ben Gurion University)
- 15:00-15:30: Phase-change-material mortars: energy efficiency principles and implementation (Loucas Kyriakou, José Ignacio Álvarez Galindo - University of Navarra)
- 15:30-16:00: Climate change scenarios and damage risk predictions for building materials (Vassilios Dallas, Mandy Vlachogianni, Athanasios Sfetsos - NCSR Demokritos)
- 16:00-16:30: Energy performance of historic buildings (Dionysia (Denia) Kolokotsa - Technical University of Crete)
- 16:30-17:00: Piezoresistive mortars: smart monitoring capabilities and structural applications (Niki Trochoutsou - Politecnico di Milano)

Networking Aperitivo with academic partners, conservation professionals and companies

Day 2: SINCERE Advanced Workshop

Morning Session I: Demonstration of Retrofitting Mortars (9:00-12:00)

- Preparation, demonstration of different mortars technologies (Hemp, UHPC, self-healing, TRM) (Vassiliki Kontogianni, Milica Radovic, Eirini Tziviloglou, Ioannis Karatasios)
- Application trials and evaluation of fresh-state properties in mock-ups
- Discussion with experts

Coffee Break (12:00-12:15)

Morning Session II: Hands-on parallel sessions (12:15-14:30)

- Station 1: Testing of mechanical and piezoresistive properties (Eirini Tziviloglou, Jacob Gavalas, Niki Trochoutsou)
- Station 2: Testing of thermal properties in mortars and radiative cooling coatings (Anno Hein, Jacob Gavalas, Loucas Kyriakou)

Lunch Break (14:30-15:30)

Afternoon Session I: SINCERE pilot applications and evaluation

- 15:30-16:00: SINCERE evaluation from ACCIONA pilots (Laura Piarulli, Alvaro Garcia Molino, Jose Vera Agullo - ACCIONA)
- 16:00-16:30: FEM simulations for material properties (Anno Hein - NCSR)
- 16:30-17:00: Introduction to Pilot projects and their retrofitting requirements (ECOAMA, ACCIONA, University of Malta, NCSR Demokritos)

Day 3: SINCERE Advanced Workshop

Morning Session I: Implementation of Mock Renovation Scenarios by the Participants

- 09:00-09:45: Case studies of Heritage Buildings Retrofitting (Hellenic Ministry of Culture)
- 09:45-10:15: Introduction on the use of "Fast Prediction Tool" for supporting decisions on materials selection (Farshid Fathi, Giacomo Torelli - University of Sheffield)
- 10:15-13:30: Participant will split in 4 groups and will implement a renovation scenario that will be proposed by the organizers, exploiting the knowledge disseminated in SINCERE workshop

Lunch Break (13:30-14:30)

Afternoon Session I: Participants Presentations

- 14:30-16:00: Presentation of the 4 groups renovation proposal
 - in a group of technical experts, focusing on technical aspects
 - in a group of citizens, highlighting social impact, heritage values preserved, and the end-user needs covered

Afternoon Session II:

- 16:00-17:30: Round table on the feasibility and impact of innovative materials that are reshaping the future of sustainable construction
- 17:30-18:00: Closing discussion and conclusions