

**Acronym** – SensMat

**Title** – Preventive solutions for Sensitive Materials of Cultural Heritage

**Scientific coordinator** – Luigi Schibuola

**Scientific sector** – ING-IND/11

**Iuav Role** – partner

**Lead partner** – Commissariat à l'énergie atomique et aux énergies alternatives - Paris

**Duration** – 38 months

**Start** – 01/01/2019

**Closure** – 28/02/2022

**Project budget**– € 6.639.504,00

**Iuav Budget** – € 270.250,00

**Funding to Iuav** – € 270.250,00

**Source of funding** – EU Call: Horizon 2020 - Call H2020-NMBP-ST-IND-2018-2020 - Topic NMBP-33-2018

**Description** – Preventive conservation has emerged as an important approach for the long-term preservation of sensitive cultural heritage, notably for mobile artefacts, those displayed or stored in harsh environments and for small and medium-sized museums. SensMat aims to develop and implement effective, low cost (<20 – 30€ for basic platform), eco-innovative and user-friendly sensors, models and decision-making tools, as well as recommendations and guidelines to enable prediction and prevention of degradation of artefacts as a function of environmental conditions. SensMat is user-driven (inclusion of 19 museums in the project plus survey of 100 more), and the consortium has solid existing results and a strong capacity to mature the sensors, models and decision-making solutions to TRL 7 during the project. Based on multiscale modelling, data management systems, collaborative platforms and sensor communication networks, museums stakeholders will be informed in real-time of possible dangers to their artefacts, thus reducing degradation risks and costly conservation treatment. Demonstration of the platform in 10 representative case studies in museums, historical buildings, storage sites and workshops will prepare rapid uptake after the project. Knowledge transfer, training, and recommendations of best practices will facilitate standardization, strategy implementation, new policy definition, and wide-scale adoption of the new solution by cultural heritage sites immediately after the project.

**Objectives** – SensMat will integrate the latest, advanced electronic sensors to manufacture very cheap and integrated sensing systems via mass-production. The system will capitalize on the latest progress in connected smart systems (Internet of Things) and in managing complex databases via artificial intelligence (Multi-Criteria Decision-Making). In order to achieve the aforementioned goals, SensMat will address six main technical objectives:

1. to enable all museums to deploy scalable, connected environmental monitoring for at a basic cost below 20 – 30 €;
2. to develop and link multi physical, multiscale models of environment and degradation in order to predict the risk of degradation given environmental conditions;
3. to develop "Contactless Degradation Sensors" for Material Monitoring, in order to detect the onset of deterioration phenomena from the surface state of very sensitive artefacts;
4. to prepare decision-making tools, required to treat collected data and to provide collection conservation managers with clear and pertinent information;
5. to devise and communicate recommendations, conservation management strategies and standardization evolutions for the preservation of cultural collections and for eco-innovative exhibition / storage with minimum impact on artefact's material integrity while reducing – if possible – museums' ecological footprint;
6. to demonstrate the full prototype platform at TRL 7 in at least 10 infrastructures: museums, historical buildings, storage sites and workshops.

**Website** – [www.sensmat.eu/](http://www.sensmat.eu/)

**LinkedIn** – [www.linkedin.com/company/sensmat/](http://www.linkedin.com/company/sensmat/)



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