

## INNOVATIVE SOLUTIONS FOR THE CONSERVATION OF *PEPERINO* STONE

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The project COLLINE, “Preservation of stones by using essential oils and nanotechnologies”, granted by Regione Lazio in the framework of DTC-Lazio, has the main aim to develop, test and evaluate a protocol for the preservation of damaged surfaces in *peperino* stone. The adopted methodological approach is based on the synergistic use of innovative materials for conservative restoration, such as nanomaterials and essential oils, together with innovative diagnostic techniques and sensors and the digitalization of data, updated in real time, for remote monitoring and management, ensuring a considerable simplification of maintenance processes and a consequent minimization of the costs.

The pulpit of the Basilica of San Francesco alla Rocca in Viterbo has been selected as case study for testing biological materials (essential oils and enzymatic complex), synthetic organic polymers, and nanostructured materials not only for an immediate recovery, but also for a long-lasting protection from outdoor agents and biological attacks. The pulpit has been digitalized as a 3D model and the spectroscopic diagnostic techniques have recorded the time zero conditions, while, at the same time, biological patinas have been sampled and characterized. Results of the digitalization, diagnostics and biological sampling will be here presented.