



European Materials Research Society

The 2018 E-MRS Spring Meeting and Exhibit will be held in the Convention Centre of Strasbourg (France), from **June 18 to 22, 2018**.

MATERIAL PROCESSING AND CHARACTERIZATION

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Cultural heritage-materials, techniques and knowledge perspectives on a common identity

The case study of the Medieval Town Wall of Gubbio in Italy.

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First results on the characterization of mortars and binders

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Resume : Good conservation and restoration practices of CH assets rely on original materials knowledge to allow the best compatibility with new ones for restoration/conservation actions to face ageing and degradation due to natural hazards, climatic changes and anthropic pressure. In the frame of the HERACLES project [1], a set of heritage sites are currently under study to improve their resilience against climate events. Among these is the medieval Gubbio Town Wall in Italy. The present work focuses on mortars and binders of this monument and collected samples relate to different parts of the Wall, corresponding to different historical periods and interventions. They were characterized to determine minerochemical compositions along with their thermal behaviour and morphology. For that purpose, ex-situ laboratory techniques such as X-ray diffraction (XRD), X-ray fluorescence (XRF), optical microscopy (OM), polarised light microscopy (PLM), Scanning Electron Microscopy (SEM) and simultaneous differential thermal analysis and thermogravimetry (TG-DTA) were used to discern trends in different sampling areas due to construction/reconstruction periods, trying to relate them to used building techniques. [1] HERACLES – HERitage Resilience Against CLimate Events on Site. The HERACLES project has received funding from the European Union Framework Programme for Research and Innovation HORIZON 2020 under Grant Agreement n°700395.