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## Near Surface muography studies and application to archaeology.

*Tuesday 20 June 2023 09:40 (20 minutes)*

Archémuons is a collaborative project between the **Institute of Physics of the 2 Infinities of Lyon** (IP2I Lyon), the **Laboratory of Geology of Lyon** (LGL) and the **Archéorient Laboratory**. The three laboratories will perform surveys at the Palais de Miroir of the Gallo Roman Museum of Vienne in France. The goal of the project is to evaluate how geology surveys (electric resistivity, gravimetry, seismometry) synergize with muon tomography for near surface underground studies. The foundation of the Palais de Miroir building and the surrounding extensive network of galleries provide a rich yet challenging set of targets to investigate. The controlled/confined environment provides opportunities to test different analysis and imaging techniques as well as new detector geometries, scintillation materials and **a new portable prototype compact detector that combines Cherenkov detection with a scintillator based trajectograph which will be deployed and tested on site**. In November 2022 the project kickstarted with an electric resistivity survey of the surface above the gallery where the muon detector will be hosted. In parallel a first set of measurements was acquired with a small scintillation detector as a proof of concept and for a first evaluation of the ground overburden. We will present the current status of this project as well as a preliminary result acquired by the time of the Muographers 2023 workshop.

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