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3D imaging from underground with muon tomography

Muon tomography uses the natural flux of muons created by cosmic rays in the Earth's atmosphere to image large structures, being sensitive to their shape and density. The LouMu team operates an RPC-based muon telescope at an underground gallery at the Lousal mine, testing muography as a new geophysical survey technique. A first target was a known regional geological fault crossing the gallery, which was successfully imaged from two different telescope positions.

The goal of this project is to use the existing two large muon data sets for a full 3D reconstruction of the ground above the gallery, for the best characterization of the Corona fault and surrounding rock, and searching to identify possible secondary structures. The results are necessary to fully compare the usefulness of muon tomography to other geophysical survey methods.

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