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The SiRO Detector (Silicone Read Out) for cosmic muon flux-trajectory measurements

The measurements of the flux and the trajectory of cosmic muons are performed using a detector based on plastic scintillators, optical fibers (wavelength shifters) and readout by SiPM(MPPC-Multi Pixel Photon Counter) devices.

The Detector is consisting of a stack of 6 active modules, grouped in 3 layers for determining the muon trajectories through 3 planes. One module has 24 plastic scintillators stripes with 2 fiber mounted on each stripe, readout by 24 MPPC devices. Active surface is 1m x 1m . The acquisition system is capable of tracking trajectories in real time. Such a detector is used to measure muon flux at ground level or underground for detecting unknown cavities in the old mining sites (ex: Slanic Prahova - Romania). Such muon flux measurements could be also used for geological studies, e.g. to explore variations in the rock density and composition above the observation level.

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