

Design, assembly and operation of a scintillator based Cosmic Ray Tagger with SiPM readout

- Cosmic Ray Tagger developed for the calibration of the Mu2e Calorimeter
- Two layers of 8 (160x1.5x2.5) cm³ EJ-200 scintillating bars, with 3.8 m Bulk Attenuation Length
- Dual-side readout based on 16 custom UV-extended large area SiPMs
- 3D tracking with time-of-arrival position reconstruction (1.6 cm σ_z with a 14cm/ns v_p)
- 160 ps time resolution on single readout side at the cosmic ray peak
- Good zenith angle reconstruction and flat hit position profile

