

Abstract Submitted
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Gamma-Calibration of the Scattered-Particle Scintillators for MUSE¹ ANNE FLANNERY, University of South Carolina, MUSE COLLABORATION — The MUon Proton Scattering Experiment (MUSE) at the Paul Scherrer Institute seeks to address the proton radius puzzle through measuring the muon-proton and electron-proton elastic cross sections in the same experiment. The MUSE setup includes scattered-particle scintillators (SPS) which are part of the event trigger and help with particle separation and reaction identification via time-of-flight measurements. The SPS system consists of two front walls with eighteen 120-cm long EJ-204 scintillation bars and two rear walls with twenty-eight 220-cm long bars. The wall pairs are placed symmetrically about the beam line. The vertical scintillators are read out at their long ends with Hamamatsu R13435 photomultiplier tubes. The precise knowledge of the detection threshold and efficiencies, as well as quantitative comparisons with Monte Carlo simulations, require an absolute energy calibration of the scintillators. In this presentation, we will discuss the gamma-calibration methods for the SPS detectors.

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