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The MUSE Measurement of the Proton Radius at PSI πM1: Scattering Test[1] RONALD GILMAN, Rutgers University, MUSE COLLABORATION — The MUon proton Scattering Experiment (MUSE) measurements at the Paul Scherrer Institut (PSI) πM1 beam line utilizes a mixed $e/\mu/\pi$ beam to measure $\mu^{\pm}p$ and $e^{\pm}p$ elastic scattering. The experiment plans to use a large-acceptance non-magnetic spectrometer of wire chambers and scintillators to measure scattered particles. Triggering will also require determining beam particle type in hardware. Prominent backgrounds include in-flight decays of π's and μ's in the beam, along with scattering from beam line detectors. To test elements of the plan, we performed a small scattering experiment during the 2013 test run with a plastic target, and a spectrometer consisting of GEM chambers and a fast scintillator for triggering. The scattering measurement will be described and some results will be presented.

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