

Abstract Submitted
for the DNP16 Meeting of
The American Physical Society

Development and Testing of Scintillating Detectors for the Muon g-2 Experiment¹ BENJAMIN MARTINEZ, EDWARD DIAMOND , ALEC SBLENDORIO, FREDERICK GRAY, Regis University — The precise value of the muon's anomalous magnetic moment that was measured at Brookhaven National Laboratory E821 differed by more than three standard deviations from predictions of the Standard Model. The Muon g-2 Experiment at Fermilab will attain a more precise measurement by a factor of three by observing the muon spin precession frequency in a magnetic field. This improved measurement could lead to evidence of physics beyond the Standard Model. A thin-scintillator entrance (T0) counter prototype is being tested for possible use in the experiment to determine the intensity and temporal profile of the beam as it is injected into the muon storage ring. The counter is also being evaluated to determine whether it can monitor undesired particles that arrive after the main beam pulse. The unique design of the entrance counter uses a silicon photomultiplier to read the light output from a scintillator. The progress of the design of the T0 entrance counter along with the results of light output tests from a beta source and the SLAC high-energy electron beam are the primary foci of this presentation. The status of scintillating fiber harp beam monitor detectors that will also be used in the g-2 Experiment to detect the position and width of the muon beam will also be presented.

¹This material is based upon work supported by the National Science Foundation under Grant No. PHY-1505887.

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Date submitted: 25 Jul 2016

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