

Abstract Submitted
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Development and testing of fiber beam monitors for the Muon g-2 experiment ROBIN BJORKQUIST, Cornell University, EDWARD DIAMOND, BENJAMIN MARTINEZ, ALEC SBLENDORIO, FREDERICK GRAY, Regis University, MUON G-2 COLLABORATION — The Muon g-2 experiment at Fermilab will measure the anomalous magnetic moment of the muon to a precision of 140 parts per billion. Careful characterization of the stored muon beam will be crucial for the experiment, because several beam-related systematic effects must be taken into account. The fiber beam monitors will provide a direct measurement of the spatial, temporal and momentum distributions and betatron oscillations of the stored muon beam. These detectors were originally built by KEK for the previous Muon g-2 experiment at Brookhaven National Lab, but have been repaired and refurbished for the upcoming experiment, including new scintillating fibers and upgraded SiPM-based readout electronics. We present the final design of the fiber beam monitor system and the results of a recent beam test performed at SLAC.

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