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**Design and performance of the calorimeter system for the Muon g-2 experiment at Fermilab**[1] JASON HEMPSTEAD, Univ of Washington, MUON G-2 COLLABORATION — The Muon g-2 experiment at Fermilab is now running. The goal is to achieve a 140 ppb measurement of the muon's anomalous magnetic moment, $a_\mu$. This will require a dataset 21 times larger than the one used by the Brookhaven experiment E821, whose measurement of $a_\mu$ exceeds the standard model prediction by more than 3 standard deviations. Central to realizing the new goal is development of a calorimeter system able to handle high data rates, maintain 0.04% gain stability, resolve pulses separated by 5 ns or more, and operate near the 1.45 T storage region without perturbing the field. Our design employs a suite of 24 calorimeters, each comprising 54 lead fluoride erenkov crystals read out individually by large-area silicon photomultipliers (SiPMs). In this talk I will discuss the final design of the calorimeters and their performance in the first year of data taking, emphasizing the gain stability and energy calibration. SiPM gains are monitored and correction algorithms are developed based on an extensive laser system. Absolute energy calibration is achieved by matching the end-point of the decay positron energy spectra and by fitting the minimum ionizing particle peaks. Finally, I will present examples of the precession frequency acquired using the calorimeters.

[1]DOE Office of Nuclear Physics, NSF

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