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An energy integrated approach for precession frequency analysis in Muon $g-2$ experiment[1] RITWIKA CHAKRABORTY, Univ of Kentucky, FERMILAB MUON G-2 EXPERIMENT COLLABORATION — The Muon $g-2$ experiment(E989) at Fermilab aims to measure the anomaly, a_μ, in the muon's magnetic moment with an improved precision compared to the previous experiment(E821) at Brookhaven whose results were found to be inconsistent with the Standard Model. We discuss a new approach to the measurement of the muon's anomalous precession frequency that is used in the determination of the anomaly. This new "energy-integrating" approach involves constructing the time distribution of energy deposited by the decay positrons in the electromagnetic calorimeters in contrast to counting individual positrons as done in traditional analyses approaches. The energy-integrating approach has advantages over positron-counting approaches in terms of systematics effects arising from gain changes and pulse pileup. This talk will present an overview of the energy integrated approach and provide a summary of the analysis of the run-1 dataset using this method. A status update on the energy integrated analysis of the subsequent datasets will also be discussed.

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