

Status of muon $g-2$ /EDM experiment at J-PARC

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In 2021, the anomalous magnetic moment of the muon, $a_\mu = (g_\mu - 2)/2$, was measured at the Fermilab National Accelerator Laboratory (FNAL) with a precision of 0.46 ppm. This measurement result is consistent with the previously value measured more than a decade ago at the Brookhaven National Laboratory (BNL), and the deviation from the Standard Model (SM) prediction has been reported with a significance of 4.2 standard deviations. This suggests the potential existence of new physics beyond the SM, but it needs to be verified through measurements employing different methods. The muon $g-2$ /EDM experiment at J-PARC aims to measure a_μ and the electric dipole moment (EDM) using a low-emittance muon beam realized through the acceleration of thermal muons and silicon tracking detectors, employing a different approach from the BNL and FNAL experiments. This presentation provides an update on the current status of each experimental component.

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