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## J-PARC muon $g-2$ /EDM Experiment

The muon anomalous magnetic moment,  $(g - 2)_\mu$ , and the electric dipole moment (EDM) are sensitive probes of physics beyond the Standard Model (SM). Recent measurements of  $(g - 2)_\mu$  show a tension with the SM prediction based on electron-positron collision data, while calculations based on lattice QCD are in better agreement with the experimental value. Clarifying this discrepancy is essential for understanding whether it originates from new physics. In this context, an independent experimental approach with different systematic uncertainties is of particular importance.

We aim to measure  $(g - 2)_\mu$  and to search for the muon EDM using a method different from those employed in the E821 experiment at BNL and the E989 experiment at Fermilab. To achieve this, we utilize the high-intensity proton beam at J-PARC together with a newly developed technique based on a reaccelerated thermal muon beam, which is produced through thermal muonium formation followed by laser ionization and linear acceleration. We have successfully demonstrated the cooling and acceleration of muons, and are advancing the proof-of-principle studies of the key technologies required for the experiment. We report the experimental approach, the current status of each component of the experiment, and future prospects.

**Primary author:** SATO, Yutaro (Niigata Univ.)

**Presenter:** SATO, Yutaro (Niigata Univ.)

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