

## Muon $g-2$ /EDM experiment at J-PARC

*Friday, October 1, 2021 8:50 AM (25 minutes)*

The muon  $g-2$  experiment at J-PARC is under preparation and targeted to measure the muon anomalous magnetic moment with the precision of 450 ppb and muon electric dipole moment with  $1.5e-21$  e cm at its first stage,

thus contributing to investigation of discrepancy between Standard Model prediction and the current world average of  $g-2$ . The latter is dominated by two similar experiments E821 BNL and E989 FNAL, while we suggest a novel approach: pulsed primary proton beam provides surface muons, which are diffused through a silica aerogel target forming thermalised muonium atoms. They are laser ionised and re-accelerated by a multi-stage linac up to 300 MeV/c before spiral injection into the storage uniform 3 T MRI-like magnet volume at the stable orbit in the absence of E-field. The silicon strip detector placed inside the magnet measures decayed positron parameters used in data analysis.

We report the experimental approach, current status, and future prospects.

### What is your topic?

Anomalous Magnetic Moment of the muon

**Primary author:** RAZUVAEV, Georgiy (BINP)

**Presenter:** RAZUVAEV, Georgiy (BINP)

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