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JOHANNES GUTENBERG UNIVERSITÄT MAINZ

PRISMA+ Colloquium

June 24, 2020 at 1 p.m.
Lorentz-Raum 05-127, Staudingerweg 7

Dieter Riess
Institute of Nuclear Chemistry

A new measurement of the electric dipole moment of the neutron

A non-zero electric dipole moment of the neutron (nEDM) would violate CP symmetry, and thus would be an indication for a new source of CP violation, which might help to explain the matter to antimatter asymmetry in our universe.

The nEDM collaboration has taken data at the Paul Scherrer Institute in 2015 and 2016 in order to improve on the previous limit

dn < 3×10−26 ecm at 90% C.L. [1].

In total more than 54000 individual measurement cycles were recorded using Ramsey's method of separated oscillating fields to measure the precession frequency of ultracold neutrons in electric and magnetic fields. The analysis of this dataset has been carried out in a blind fashion.

The collaboration has un-blinded their result at the end of November 2019.

The new result will be presented together with a detailed description of the experiment.

[1]: J.M. Pendlebury et al. PRD 92, 092003 (2015)

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