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(UG*) Measurements of a Magnetically Shielded Room for a Neutron EDM Experiment

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Measurements of the neutron electric dipole moment (EDM) place severe constraints on new sources of CP violation beyond the standard model.
The TRIUMF UltraCold Advanced Neutron (TUCAN) EDM experiment aims improve the measurement of the neutron EDM by a factor of 10 compared to the world's best measurement. The experiment must be conducted in a magnetically quiet environment. A magnetically shielded room (MSR) has been prepared at TRIUMF to house the experiment. The MSR was designed to provide a quasi-static magnetic shielding factor of minimally 50,000, which would be sufficient to meet the requirements of the EDM experiment. Measurements have showed that the shielding factor goal was not met. Several additional measurements were taken in order to understand the result. In communication with the MSR vendor, we have designed a new insert for the MSR, which is expected to restore its capabilities. In this presentation I will review the situation with the TUCAN MSR, how we discovered its performance issues, and our progress on fixing the problem.

Keyword-1

Standard Model

Keyword-2

dipole moment

Keyword-3

Author: HEPWORTH, Thomas (The University of Winnipeg)

Presenter: HEPWORTH, Thomas (The University of Winnipeg)

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