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Current searches for a neutron electric dipole moment

ROBERT GOLUB, North Carolina State University

The search for particle Electric dipole moments is generally accepted as the most promising place to search for physics beyond the Standard Model. One reason for this is that the standard model background is so small. Supersymmetric theories, for example, are already constrained by existing EDM limits. In the fifty year history of these experiments numerous models have been falsified. Searches for hadronic sector electric dipole moments are particularly sensitive to CP-violation that might contribute to generation of a matter/anti-matter asymmetry at the electroweak symmetry breaking transition. At the moment there are about six serious projects to reduce the upper limit on a possible non-zero neutron electric dipole moment. After a brief survey of these experiments attention will be focused on a new cryogenic experiment [1] at the ORNL SNS and a room temperature experiment [2] at the Munich FRM II reactor. All modern experiments use trapped ultra - cold neutrons, which virtually eliminates the $v \times E$ systematic which plagued earlier beam experiments but is subject to a new variant of that related to the geometric phase.

[1] R. Golub and Steve K. Lamoreaux, Phys. Rep. 237 (1994) 1.

[2] I. Altarev, et al., Nuovo Cim. C035N04 (2012) 122.