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Searching for Electric Dipole Moments

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Permanent Electric Dipole Moments (EDM) of hadrons and leptons provide a unique probe for physics beyond the Standard Model (SM). As EDMs violate P and T symmetries, they also provide information about the matter-antimatter asymmetry in the universe. Although the SM prediction for EDMs is beyond the reach of current experiments, the experiments set stringent limits on many beyond SM models. In this talk I will present an overview of selected experimental efforts and discuss their roles towards an improved understanding of the underlying physics. A focus will be the neutron EDM search at TU Munich, which is the first already built apparatus in this field, which plans to reach a more than 10-fold improvement. The apparatus is being moved to a new source of ultra-cold neutrons at ILL within the next year and deals with various novelties to improve the understanding of systematic effects, including the smallest magnetic fields on earth and the investigation of non-gaussian statistics in spin precession.

Summary

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