

Experimental search for an electric dipole moment of the neutron

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The existence of a permanent non-zero electric dipole moment of the neutron (nEDM) would be unambiguous evidence for a violation of time reversal symmetry (T). The Standard Model (SM) contribution to the nEDM is of order 10^{-32} ecm while the current experimental limit is $d_n < 2.9 \cdot 10^{-26}$ ecm. The search for an nEDM is one of the most sensitive experiments searching for physics beyond the SM (BSM) and any improvement of the current experimental limit will constrain BSM models. There are many efforts worldwide to search for an nEDM with high sensitivity; I will present the ongoing nEDM experiment at Paul Scherrer Institut (Switzerland) in which the Ramsey technique of separated oscillatory fields is applied to the stored ultracold neutrons with the potential to observe or rule out an nEDM at the level of 10^{-27} e*cm in the coming years.

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