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The search for an electric dipole moment of the neutron at PSI

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For more than fifty years physicists have tried to measure the electric dipole moment of the neutron (nEDM). The limit on the nEDM has become smaller and smaller, but at present its value remains consistent with zero. However, the Standard Model of particle physics predicts a small non-zero value, as do the various extensions of the Standard Model. The predictions span several orders of magnitude, making the measurement of the nEDM an excellent probe for beyond Standard Model physics. Additionally, the T- and P-violation that a non-zero nEDM would imply, could shed some light on the origin of the baryon asymmetry that is observed in our universe.

Presently, our international collaboration is running the world's most sensitive nEDM experiment at the ultra cold neutron source of the Paul Scherrer Institute (PSI). In this talk I will give a general overview of the experimental technique, discuss recent improvements in sensitivity and elaborate on advances in our understanding of systematic effects.

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