

Improved search for the neutron electric dipole moment

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One of the mysteries of our universe is the observed baryon asymmetry which can not be explained using the Standard Model of particle physics. According to Sacharov this implies further, yet unknown, CP violation which will be tested with a refined search for the neutron electric dipole moment. A collaboration of 15 European institutes has been preparing a more sensitive experiment to be operated at the Paul Scherrer Institut, based on the former RAL/Sussex/ILL. In a first step the sensitivity shall be improved to $d_n < 5 \times 10^{-27}$ ecm to be compared with the present experimental limit of $d_n < 2.9 \times 10^{-26}$ ecm. This will be achieved by significantly increased ultracold neutron densities and an according control of systematic effects. In parallel a completely new apparatus is being developed which will push the sensitivity well into the 10^{-28} e*cm range.

Presenter: Prof. SCHMIDT-WELLENBURG, Phillip (Paul Scherrer Institute, Switzerland)

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