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Progress toward the first measurement of the deuteron Electric Dipole Moment at COSY — ●VERA SHMAKOVA for the JEDI-Collaboration — Institut für Kernphysik, Forschungszentrum Jülich, Germany — JINR, Dubna, Russia

One of the major problems of modern particle physics is the inability of the Standard Model (SM) to explain the matter-antimatter asymmetry of the Universe. Permanent electric dipole moments (EDMs) of particles violate both time reversal (T) and parity (P) invariance, and are via the CPT-theorem also CP-violating. Therefore, measurements of EDMs of fundamental particles probe new sources of CP-violation, and finding an EDM would be a strong indication for physics beyond the SM.

Up to now, EDM searches mostly focused on neutral systems (neutrons, atoms, and molecules). Storage rings, however, offer the possibility to measure EDMs of charged particles by observing the influence of the EDM on the spin motion in the ring. Direct searches of proton and deuteron EDMs using a storage ring thus bear the potential to reach sensitivities beyond 10^{-29} e-cm. In this talk I will discuss recent results of a “precursor” deuteron EDM experiment, presently being carried out at the Cooler Synchrotron COSY at Forschungszentrum Jülich.

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Topic: 2.10 CP-Verletzung und Mischungswinkel (Exp.); 2.10 CP Violation and Mixing Angle (Exp.)s
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