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Measurement of the deuteron static and oscillating electric dipole moment at the COoler SYnchrotron COSY

Saturday, 27 September 2025 15:00 (30 minutes)

Electric dipole moments (EDMs) play a central role in searches for CP violation beyond the Standard Model. This talk reviews activities at the COoler SYnchrotron COSY at Forschungszentrum Juelich in Germany. A series of milestones in the preparation for electric dipole measurements of charged hadrons in storage rings have been achieved in recent years at COSY. These include the measurement of spin tune, reaching spin coherence times of over 1000 seconds, operating a feedback system to control the spin precession in storage rings and the operation of radio-frequency devices to manipulate the spin motion.

These achievements led to a first search for axion-like particles in a storage rings and a first measurement of the deuteron's EDM. The talk discusses the main results obtained at COSY and plans for future developments.

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