ACCELERATOR SEMINAR

Search for Permanent Electric Dipole Moments of Protons and Deuterons Using Storage Rings

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The Standard Model (SM) of Particle Physics is not capable to account for the apparent matter-antimatter asymmetry of our Universe. Physics beyond the SM is required and is searched for (*i*) employing highest energies (e.g., at LHC), and (*ii*) striving for ultimate precision and sensitivity (e.g. in the search for electric dipole moments (EDMs)). Permanent EDMs of particles violate both time reversal (*T*) and parity (*P*) invariance, and are via the *CPT*-theorem also CP-violating. Finding and EDM would be a strong indication for physics beyond the SM, and pushing upper limits further provides crucial tests for any corresponding theoretical model, e.g. SUSY. Direct searches of proton and deuteron EDMs bear the potential to reach sensitivities beyond 10^{-29} e·cm.

The talk will highlight recent achievements from experimental investigations at COSY toward the search for electric dipole moments of protons and deuterons in storage rings; it will emphasize on the most spectacular possibilities in modern science: Finding a signal for new physics beyond the Standard Model through the detection of permanent electric dipole moments in a storage ring.

Thursday, February 4, 2016
10:00 a.m.
ARC, Room 231/233

Coffee before seminar beginning at 9:45 p.m.

Jefferson Lab

For further info, please contact
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