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Measurement of Systematic Error Effects for a Sensitive Storage Ring EDM Polarimeter[1] ASTRID IMIG, BNL, EDWARD STEPHENSON, Indiana University, STORAGE RING EDM COLLABORATION — The Storage Ring EDM Collaboration was using the Cooler Synchrotron (COSY) and the EDDA detector at the Forschungszentrum Jülich to explore systematic errors in very sensitive storage-ring polarization measurements. Polarized deuterons of 235 MeV were used. The analyzer target was a block of 17 mm thick carbon placed close to the beam so that white noise applied to upstream electrostatic plates increases the vertical phase space of the beam, allowing deuterons to strike the front face of the block. For a detector acceptance that covers laboratory angles larger than 9 °, the efficiency for particles to scatter into the polarimeter detectors was about 0.1% (all directions) and the vector analyzing power was about 0.2. Measurements were made of the sensitivity of the polarization measurement to beam position and angle. Both vector and tensor asymmetries were measured using beams with both vector and tensor polarization. Effects were seen that depend upon both the beam geometry and the data rate in the detectors.

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