



Parity Violation Electron Scattering Experiments and Beam Precision

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The aim of the upcoming MOLLER experiment at Jefferson Laboratory, a national accelerator facility, is to probe electroweak interactions with unprecedented sensitivity reach at both low and high energy scales to discover new beyond the Standard Model dynamics. MOLLER is an extremely precise measurement of parity violation in electron scattering searching for new neutral currents in electron-electron scattering. The measurement relies on a high precision comparison of scattering rates for opposite beam helicity polarization, and ensuring tight limits on polarization-dependent asymmetries in the electron beam is a key technical challenge.

Significant operational experience in the polarized electron source for parity-violation experiments has been obtained at Jefferson Lab. This talk will be geared towards describing techniques employed to meet the stringent systematic uncertainty goals arising from beam asymmetries in parity experiments such as the recent PREX-II and CREX experiments as well as the upcoming MOLLER experiment.

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4:00 pm

Lindley Hall room 321