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Testing fundamental symmetries with parity-violating electron scattering

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Electroweak interference leads to the presence of parity violation in electron scattering, which is measurable in experiments that scatter polarized electrons from unpolarized targets. This phenomenon was originally exploited in the classic SLAC experiment in the 1970s (C.Y. Prescott, et al. Phys. Lett. 84B (1979) 524) which was pivotal in establishing the neutral current sector of the Standard Model. The technique has been used more recently as a probe of nucleon structure, such as the determination of vector strange form factors, in experiments at MIT/Bates, MAMI, and Jefferson Lab. More recently, renewed attention has been focused on tests of fundamental symmetries and searches for physics beyond the Standard Model using this technique. Recent results will be reviewed, and the prospects for several upcoming experiments at Jefferson Lab (Qweak, disParity) as well as proposed experiments with the 12 GeV upgraded facility will be discussed.