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Parity-violating electron-nucleus scattering at Mainz[1] OLEKSANDR KOSHCHII, Johannes Gutenberg University Mainz — Parity-violating (PV) elastic scattering of longitudinally polarized electrons by an unpolarized nucleus is a powerful tool for precision tests of the Standard Model (SM) and for studies of the nuclear structure. The respective left-right asymmetry (A_{PV}) probes one of the fundamental parameters of the SM - the weak mixing angle. Besides precision tests of the SM, parity-violating electron-nucleus scattering can be employed for a determination of the spatial distribution of neutrons within the nucleus and thus enables one to deduce the thickness of the neutron skin. Knowledge of the neutron skin can have a strong impact in many areas of physics. In my talk I will review the parity violating program at the MESA facility in Mainz and discuss our recent study of theoretical uncertainties for a measurement of A_{PV} on a ^{12}C target. Our calculation is performed in a connection with the prospective measurement at MESA.

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