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Measurement of neutron skin thickness of ^{208}Pb through parity-violating electron scattering

Determination of the neutron skin thickness which is defined as the difference of the root-mean-square radii of neutron and proton distributions inside a nucleus is of fundamental importance in nuclear physics and relativistic heavy-ion collisions. Neutron skin thickness is strongly sensitive to the density dependence of symmetry energy which is a key parameter of nuclear matter Equation of State. Due to its significantly larger weak charge, neutron distribution can be cleanly and model-independently probed via the parity-violating electron scattering. The PREX-II experiment at Jefferson Lab has performed a high precision measurement of neutron skin thickness of ^{208}Pb . In this talk, the experimental setup, data analysis, and final results of PREX-II experiment will be presented.

Primary author: ZHANG, Jinlong (Shandong University)

Presenter: ZHANG, Jinlong (Shandong University)