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The 151th HENPIC seminar by Prof. Jinlong Zhang, Shandong University, Oct. 21, 2021, Thursday, 10:30 am (Beijing time)

Title: Probing neutron skin thickness with parity-violating electron scattering

Abstract: The difference of the root-mean-square radii of neutron and proton distributions inside nucleus is referred to as “neutron skin” which is of fundamental importance in nuclear physics and relativistic heavy-ion collisions. Neutron skin thickness is 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/CREX experiments at Jefferson Lab have performed high precision measurements of neutron skin thickness of ^{208}Pb and ^{48}Ca. In this seminar, the experimental setup, data analysis, and results of PREX-II/CREX experiment will be presented.
[1] D. Adhikari et al., (PREX Col.) PRL 126, 172502 (2021)

About the speaker: Jinlong Zhang is a professor at Shandong University (SDU). He is member of RHIC-STAR, JLab-PREX/CREX, and EIC-ATHENIA collaborations. His research interest is in the experimental studies of nuclear and nucleon structure and the spin effects therein. He received his Ph.D. in 2016 from SDU with work on RHIC-spin physics, and worked as postdoc at LBNL and Stony Brook University before joining faculty of SDU in 2020.