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The 240th seminar by Yuxun Guo, UC Berkeley, 10:30, January 8, 2026

Title: Proton tomography with generalized parton distributions at current and future facilities

Abstract: Understanding the mass, spin, and mechanical properties encoded in the multidimensional structure of the nucleon has long been a central goal of nuclear physics, and a key motivation for experimental programs at Jefferson Lab and the future Electron-Ion Collider (EIC) at BNL in the US and in China (EicC). Generalized parton distributions (GPDs) and gravitational form factors (GFFs) have therefore attracted growing attention in recent years. In this talk, I will present recent progress in studying GPDs and GFFs through exclusive production processes and complementary constraints. In particular, I will report a state-of-the-art extraction of GPDs from global analyses that combine experimental and lattice QCD data, establishing a benchmark for GPD studies at the EIC and EicC. I will also discuss new developments in probing proton GFFs via exclusive heavy quarkonia production near the threshold.

Brief introduction about the speaker: Dr. Yuxun Guo got his bachelor ' s degree in 2018 at Tsinghua University and PhD in 2023 at University of Maryland, College Park, working with Prof. Xiangdong Ji. Now he works at U.C. Berkeley as a postdoc scholar, working with Dr. Feng Yuan. His research interest mainly focuses on the multidimensional structure of nucleons through generalized parton distributions and hard exclusive processes.

Summary