Contribution ID: **52** Type: **Invited talk**

Photon-to-Nucleon Transition Distribution Amplitudes and Backward Time-like Compton Scattering

Tuesday 30 November 2021 17:20 (30 minutes)

Nucleon-to-meson and nucleon-to-photon transition distribution amplitudes (TDAs) arise in the collinear factorized description of a class of hard exclusive reactions characterized by the exchange of a non-zero baryon number in the cross channel. In this talk, we review the properties of nucleon-to-photon (and photon-to-nucleon) TDAs, which encode the photon content of the nucleon and allow a new tomography of the nucleon. We present the application of the collinear QCD factorization framework involving photon-to-nucleon TDAs to the description of the exclusive photoproduction off a nucleon of a large invariant mass lepton pair in the backward region. We consider modeling of photon-to-nucleon TDAs relying on the vector-meson-dominance framework and provide estimates of the backward time-like Compton scattering cross-section for the JLab experimental setup. The background due to the electromagnetic Bethe-Heitler process is shown to be negligible in the relevant kinematical regime.

Author: SEMENOV-TIAN-SHANSKY, Kirill (PNPI)

Co-authors: Dr PIRE, Bernard (CPHT, Ecole Polytechnique); SZYMANOWSKI, Lech (National Centre for Nuclear Research)

Presenter: SEMENOV-TIAN-SHANSKY, Kirill (PNPI)

Session Classification: Plenary Session