

Theory and computation highlights in July, 2022
(Contribution to the Director's Monthly Report to JSABOD)

August 10, 2022

A new generation of experiments at JLab and DESY explore the physics of two-photon exchange: higher-order electromagnetic processes with internal excitation of the nucleon, using positron beams and spin observables. A recent theoretical study [arXiv:2207.07588] has predicted the target normal single-spin asymmetry resulting from two-photon exchange in inclusive electron-nucleon scattering, in the energy region where Δ resonance excitation takes place. It uses a novel method based on the semiclassical $1/N_c$ expansion of QCD, which enables a systematic treatment of Δ excitation and permits calculations with parametrically controlled uncertainties.

JPAC has been providing scattering amplitudes and event generators (jpacPhoto) for EIC and JLab24 simulations. Given below is a sample result presented by J. Stevens at a recent EIC workshop:

