

Abstract Submitted
for the DNP17 Meeting of
The American Physical Society

Generalized Parton Distributions of the nucleon from exclusive lepto- and photo-production of lepton pairs SHO UEMURA, MARIE BOER, Los Alamos National Laboratory — Generalized Parton Distributions (GPDs) contain the correlation between the parton's longitudinal momentum and their transverse distribution. They are accessed through hard exclusive processes such as exclusive Compton processes, where two photons are exchanged with a quark of the nucleon, and at least one of them has a high virtuality. Exclusive Compton processes are considered "golden" channels, as the only non-perturbative part of the process corresponds to the GPDs. Deeply Virtual Compton Scattering (DVCS) corresponds to the lepto-production of a real photon and has been intensively studied in the past decade. We propose to access GPDs with the two other cases of exclusive Compton processes: Timelike Compton Scattering (TCS) corresponds to the photo-production of a lepton pair, and Double Deeply Virtual Compton Scattering (DDVCS) corresponds to the lepto-production of a lepton pair. The study of these two reactions is complementary to DVCS and will bring new constraints on our understanding of the nucleon structure, in particular for a tomographic interpretation of GPDs. We will discuss the interest of TCS and DDVCS in terms of GPD studies, and present the efforts held at Jefferson Lab for new experiments aiming at measuring TCS and DDVCS.

Marie Boer
Los Alamos National Laboratory

Date submitted: 20 Oct 2017

Electronic form version 1.4