

Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Timelike Compton Scattering with CLAS12 at Jefferson Lab

PIERRE CHATAGNON, Universite Paris-Saclay, CLAS COLLABORATION — Generalized Parton Distributions (GPDs) are nowadays the subject of an intense effort of research, in the perspective of understanding nucleon spin and its mechanical properties. This talk will highlight the measurement of Timelike Compton Scattering (TCS), which is the time-reversal conjugate process of Deeply Virtual Compton Scattering (DVCS). TCS is the photoproduction of a virtual timelike photon, which then decays into a lepton pair. Experimental studies of DVCS and TCS are complementary. Helicity/spin observables of DVCS give direct access to the imaginary part of combinations of Compton Form Factors (CFFs, related to GPDs), which is also accessed in the TCS initial photon polarization asymmetry, providing a way to test the universality of GPDs. The angular asymmetry of the decay lepton pairs of TCS is related to the real part of the CFF H , itself linked to the pressure distribution inside the nucleon via the D -term. The CLAS12 detector of Jefferson Lab provides the ideal setting to perform a TCS experiment. CLAS12 took data with a 10.6 GeV electron beam on a liquid-hydrogen target in 2018. This talk presents the first-time measurement of TCS photon polarization asymmetry and angular asymmetry and comparisons to model predictions are made.

Pierre Chatagnon
Universite Paris-Saclay

Date submitted: 07 Jan 2021

Electronic form version 1.4