

Prospects for DVCS Measurements using COMPASS spectrometer at CERN

The high energies polarized muon beams available at CERN, and the option of using either positive or negative ones, give to the COMPASS experiment an excellent opportunity for studying Generalized Parton Distributions (GPD), through Deeply Virtual Compton Scattering (DVCS). The GPD formalism provides a link between the transverse position and the momentum distributions of partons inside the nucleon. Moreover, the second moment of

GPDs gives access to the total angular momentum carried by partons. That brings a new insight on the more than 20 years old nucleon spin puzzle.

In the full-scale programme, two running periods are considered, with the first one using an unpolarized proton target. We propose to measure the slope of the momentum transfer distribution which is known to reflect the size of the partonic object on which the DVCS process took place. The dependence of the slope can be measured as a function of x_{Bj} to observe possible shrinkage of the nucleon size for increase values of x_{Bj} . Furthermore, the beam charge and spin difference will be measured and the Compton Form Factor involving the GPD H will be determined over a wide kinematical range.

At a second stage we consider to use a transversely polarized proton target, in order to collect data that constrain the GPD E .

In the view of future GPD measurements two DVCS test runs were performed in 2008 and 2009 years.

Primary author: Dr KOUZNETSOV, Oleg (CEA Saclay)

Presenter: Dr KOUZNETSOV, Oleg (CEA Saclay)