

## COMPASS results on measurement of the spin-dependent structure function $g_2$ of the proton. (on behalf of the COMPASS Collaboration)

The spin-dependent structure function  $g_2$  of the proton has been extracted by the COMPASS experiment (SPS, CERN) from DIS data collected in 2010 using 160 GeV/c muon beam and transversely polarized  $\text{NH}_3$  target. Within the so-called Wandzura-Wilczek approximation,  $g_2$  can be related to the spin-dependent structure function  $g_1$  while from the constraints imposed by Lorentz invariance relations, it is expected to be linked to the first  $k_T$ -moment of the  $g_{1T}$  TMD PDF.

The extraction of  $g_2$  virtual photon-absorption asymmetry  $A_2$  was based on the measurement of  $A_T^{\cos(\phi_S)}$  asymmetry and on the available global fit results on  $g_1$  and ratio of longitudinal and transverse photoabsorption cross sections  $R$ .

Compared to the previous measurements performed by SLAC and HERMES experiments, COMPASS covers larger kinematic range ( $0.003 < x < 0.9$ ), providing access to the previously unexplored low- $x$  domain.

In this talk COMPASS preliminary results on  $g_2$  will be presented along with relevant details of the analysis and comparison with previous measurements.

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