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Drell-Yan measurement at COMPASS: a place to test the TMD PDFs universality¹

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For the first time ever, the COMPASS experiment (CERN, SPS) collected in 2015 Drell-Yan (DY) data using a 190 GeV/c pion beam on a transversely polarized NH₃ target. The azimuthal modulations of the DY cross-section give access to the set of transverse momentum dependent (TMD) parton distribution functions (PDFs), which describe the spin structure of the nucleon. Those PDFs were already measured in semi-inclusive deep inelastic scattering (SIDIS) by several experiments and especially COMPASS, which dedicated several campaigns between 2002 and 2010 to measure spin (in)dependent azimuthal asymmetries using a 160 GeV/c polarized muon beam on a transversely polarized ⁶LiD or NH₃ target. A key interest of extracting those TMD PDFs from different processes is to check the universality and the process-dependent features of TMD PDFs. In this aim, COMPASS is a unique place to test the predicted sign-change of the TMD PDFs using a similar experimental setup and comparable kinematic domain. The main focus of this talk will be set on the physics aspects of the COMPASS polarized Drell-Yan program and related SIDIS results.

¹on behalf of the COMPASS collaboration