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Polarized Drell-Yan at the COMPASS experiment: transverse spin physics program

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The COMPASS experiment (SPS, CERN) covers a broad range of physics aspects in the field of hadron structure and spectroscopy. Particular focus is given to the exploration of the transverse spin structure of the nucleon via the study of spin (in)dependent azimuthal asymmetries measured in semi-inclusive deep inelastic scattering (SIDIS) and Drell-Yan

(DY). Within QCD parton model approach, these phenomena give access to the set of transverse momentum dependent (TMD) parton distribution functions (PDFs) parametrizing the spin structure of the nucleon.

Between 2002 and 2010 COMPASS performed series of SIDIS measurements, using a longitudinally polarized muon beam of 160 GeV/c momentum and transversely polarized ^6LiD and NH_3 targets. COMPASS Drell-Yan measurements with a 190 GeV/c pion beam and transversely polarized NH_3 target started in 2015 and are planned to be continued in 2018. The measurement of the Sivers and all other azimuthal asymmetries in polarized SIDIS and Drell-Yan at COMPASS provides a unique possibility to test predicted universal and process dependent features of TMD PDFs using a similar experimental setup and exploring a 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.

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