

Drell-Yan measurements at the COMPASS experiment

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In 2015 and 2018 the COMPASS experiment at CERN measured muon pair production reactions using 190 GeV π^- beam impinging on a transversely polarised NH_3 and unpolarised nuclear (Al, W) targets. The main focus was given to the study of the dimuons produced in the Drell-Yan and J/ψ production channels. Apart from the absolute cross-section measurements for the both processes, COMPASS studies also the target spin (in)dependent azimuthal asymmetries in both channels. Assuming the valence quark-antiquark annihilation to be the main production mechanism, one can interpret the azimuthal asymmetries in terms of convolutions of pion and proton Transverse Momentum Dependent (TMD) Parton Distribution Functions (PDFs). The TMD PDFs are universal QCD objects providing a mapping of parton densities in the 3D momentum space. Recent results obtained by COMPASS for the Drell-Yan and J/ψ channels will be discussed along with complementary semi-inclusive DIS measurements and theory predictions.

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