

XVth Quark Confinement and the Hadron Spectrum



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Longitudinal and transverse PDFs of hadrons - from COMPASS to AMBER

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COMPASS is the longest-running experiment at CERN, with a record-breaking 20 years of data collection from 2002 to 2022. The experiment has a unique and diverse physics program focused on nucleon structure and spectroscopy measurements.

The experimental results obtained by COMPASS during Phase I (2002-2011) and Phase II (2012-2022) for a wide range of nucleon spin structure-related DIS and Drell-Yan measurements play an essential role in the general understanding of the three-dimensional nature of the nucleon. In 2022, the experiment concluded its final data-taking phase, which focused on the study of transverse spin phenomena in semi-inclusive measurements of hadron production in DIS. This was conducted using a high-energy muon beam and a transversely polarized deuteron target. This talk will review selected highlights from the COMPASS legacy on longitudinal and transverse nucleon spin structure studies and address recent results and prospects with the COMPASS successor, the AMBER experiment.

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