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Measurement of the azimuthal modulations of hadrons in unpolarized SIDIS events.

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In 2016 and 2017, together with DVCS data, the COMPASS Collaboration has collected a considerable amount of Deep Inelastic Scattering events scattering a 160 GeV/c muon beam off a liquid hydrogen target. A first analysis of a small

subsample of these data has allowed to extract preliminary results on the amplitudes of three azimuthal modulations, $A_{UU}^{\cos \phi_h}$, $A_{UU}^{\cos 2\phi_h}$ and $A_{LU}^{\sin \phi_h}$. The first two modulations are particularly important since they carry information on the intrinsic transverse momentum k_{\perp} of the quarks and on the correlations between the quark spin and k_{\perp} , expressed by the Boer-Mulders TMD PDFs.

The kinematic dependence of these amplitudes as a function of the Bjorken variable x , of the fraction of virtual photon energy carried by the hadron z and of the component P_{hT} of the hadron momentum orthogonal to the virtual photon direction will be shown and discussed.

These preliminary results confirm the strong kinematic dependencies observed in previous measurements. Perspectives for the full analysis will also be given.

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