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Exclusive pi0 production at COMPASS

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At COMPASS DVCS and DVMP processes are studied in order to probe the partonic structure of the nucleon by constraining GPD models. Extending beyond semi-inclusive deep inelastic scattering, the measurement of lepton-induced exclusive reactions enables the study of GPDs, which ultimately reveal the three dimensional picture of the nucleon and the decomposition of its total angular momentum. The COMPASS experiment at CERN uses a high intensity tertiary muon beam with a momentum of 160GeV/c impinging on a 2.5m-long unpolarized liquid hydrogen target. To ensure the exclusivity and precision of the measurement, the wide angle electromagnetic calorimetry together with the two-stage magnetic spectrometer is complemented with a new barrel-shaped time-of-flight system surrounding the target. Exploiting the flavour filtering character of DVMP measurements, the COMPASS experiment is able to access different combinations of quark and gluon GPDs by determining the cross sections for various mesons. We report on the first extraction of the exclusive pi0 cross section in the intermediate xB domain ranging from 0.01 to 0.15.

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 Presenter:
 GORZELLIK, Matthias (Albert-Ludwigs-Universitaet Freiburg (DE))

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