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Exclusive π^0 muoproduction at COMPASS

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Hard Exclusive Meson Production is a very promising reaction to access Generalized Parton Distributions (GPDs). Measurements of the cross section for hard exclusive neutral-pion muoproduction on the proton were performed at COMPASS in 2016 and 2017 at the M2 beamline of the CERN SPS using 160\,GeV/c longitudinally polarised μ^+ and μ^- beams scattering off a 2.5 m long liquid hydrogen target. Results were obtained in a wide kinematic region with the photon virtuality Q^2 up to 8 $(\mathrm{GeV}/c)^2$ and the Bjorken variable x_B ranging from 0.016 to 0.45. We will report on the virtual-photon proton cross section averaged over the μ^+ and μ^- cross sections and on its dependence on the squared four-momentum transfer between initial and final proton in the range $0.08\,(\mathrm{GeV}/c)^2 < |t| < 0.64\,(\mathrm{GeV}/c)^2$ and on the azimuthal angle between the scattering plane and the π^0 production plane. Fitting the azimuthal dependence yields the sum of the contributions by transversely and longitudinally polarised photons as well as transverse-transverse and longitudinal-transverse interference contributions. The COMPASS results provide input to constrain GPDs, in particular chiral-odd ("transversity") GPDs.

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