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Inclusive Photoproduction of π^0 and η Mesons in the Photon Hemisphere at HERA

H1 Collaboration, DESY

The inclusive photoproduction of π^0 and η mesons is studied at a mean γp centre-of-mass energy, $\langle W \rangle = 200\,\mathrm{GeV}$. The mesons are detected in the backward calorimeter (SpaCal) of the H1 detector at HERA via their decays to photons. The double differential π^0 cross section, measured as a function of the pion's transverse momentum and rapidity, is compared with the predictions of the Monte Carlo models PHOJET and PYTHIA. The contributions of resolved and direct processes to the cross sections are studied as is the influence of multiple parton interactions within the PYTHIA model. The PYTHIA calculations including multiple interactions do not describe the data as well as either PHOJET or PYTHIA without multiple interactions.