Total charm production cross section and production asymmetries in Σ^--Nucleus interactions at 340 GeV/c

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Abstract

CERN experiment WA89 uses a Σ^- beam at 340 GeV/c to study the production of charmed particles. Based on the reconstruction of all final charm states from the full data sample of our 93 and 94 beamtimes the total $c\bar{c}$ cross–section has been determined.

Production of particles which have a light quark in common with the beam is compared to production of those which do not. Considerable production asymmetries between D^- and D^+, D_s^- and D_s^+, and Λ_c and $\bar{\Lambda}_c$ are observed.