

T 404 Schwere Quarks IV

Zeit: Montag 16:30–18:05

Raum: TU H2033

Gruppenbericht

T 404.1 Mo 16:30 TU H2033

Charmonium-Unterdrückung in Proton-Kern-Wechselwirkungen mit dem HERA-B-Experiment — ●MARTIN ZUR NEDDEN für die HERA-B-Kollaboration — Institut für Physik, Humboldt-Universität zu Berlin

Mit dem HERA-B-Experiment (DESY, Hamburg) wurde die Produktion schwerer Quarks untersucht, die durch die Wechselwirkung der Protonen des HERA-Speicherrings mit Drahttargets aus unterschiedlichen Materialien erzeugt wurden.

In einer fünfmonatigen Datennahmeperiode in den Jahren 2002 und 2003 wurden etwa 160 000 Zerfälle $J/\psi \rightarrow \mu^+\mu^-$ aufgezeichnet, 55% davon gleichzeitig mit einem Kohlenstoff- und einem Wolframdraht als Target. Mit diesem Datensatz wurde die Unterdrückung der J/ψ -Produktion in Kernmaterie untersucht. HERA-B deckt dabei einen kinematischen Bereich von negativen Feynman- x bis zu $x_F = -0,3$ ab, der bisher für Fixed-Target-Experimente nicht zugänglich war. Verschiedene theoretische Modelle sagen für diesen Bereich unterschiedlich starke Charmonium-Unterdrückung vorher. Durch die gleichzeitige Nutzung zweier Targetdrähte werden systematische Verzerrungen des Messergebnisses durch zeitlich variierende Detektor- und Triggereffizienzen reduziert.

Der Vortrag stellt Analysen zur Untersuchung der J/ψ -Unterdrückung in HERA-B vor und präsentiert die zentralen Ergebnisse. Im Bereich negativer x_F wird eine schwache Unterdrückung der J/ψ -Produktion beobachtet.

T 404.2 Mo 16:50 TU H2033

Production of the χ_c Meson in Proton-Nucleus Reactions Measured with the HERA-B Detector — ●ALEKSANDAR ALEKSANDROV for the HERA-B collaboration — DESY Zeuthen, Platanenallee 6, D-15738 Zeuthen

Charmonium production in hadronic reactions poses interesting challenges to the understanding of QCD. In spite of experimental effort, the mechanisms of quarkonium production in hadronic environment are not well understood. While the primary charmonium production is believed to be perturbatively calculable, formation of the bound states is a nonperturbative QCD process and requires some understanding of the evolution from the quark-antiquark state to the colourless quarkonium states.

HERA-B is a fixed target experiment operating at the HERA storage ring in DESY. Charmonium and other heavy flavor states are produced in inelastic collisions by inserting wire targets into the halo of the 920 GeV proton beam circulating in HERA. A sample of about 160 000 $J/\psi \rightarrow \mu^+\mu^-$ was collected in the period of 2002/2003 which allows us to study the hadron production of χ_c . Results on the ratio of χ_c to J/ψ production will be presented.

T 404.3 Mo 17:05 TU H2033

Charm Jets in DIS — ●ADRIAN PERIEANU — c/o DESY FH1 Notkestr. 85 22607 HH

The structure and possible QCD effects within the charm jets are presented. The study is done using the data taken with H1 detector in ep collisions at HERA.

The reconstruction of the charm jets is done using the D^* meson. The event kinematic is restricted to the deep inelastic scattering (DIS) regime. Comparisons between data and MC models are shown. An investigation of "Dead Cone" effect in QCD is also presented.

T 404.4 Mo 17:20 TU H2033

Measurements of charm production in DIS — ●MANUEL ZAMBRANA for the ZEUS collaboration — DESY ZEUS F1 Madrid

Charm production has been measured in deep inelastic scattering with the ZEUS detector at HERA using an integrated luminosity of about 80 pb⁻¹. The data complement previous measurements by considering different charm-tagging methods. The data are compared with the predictions of next-to-leading-order QCD.

T 404.5 Mo 17:35 TU H2033

Charm in charged current deep inelastic scattering with the ZEUS detector at HERA — ●MENG WANG — Physikalisches Institut der Universität Bonn, Nußallee 12, 53115 Bonn

A measurement of charm production in charged current (CC) deep in-

elastic scattering (DIS) has been performed with the ZEUS detector at the HERA collider in Hamburg. The data used are e^+p collisions collected at center-of-mass energies of 300 and 318 GeV in the years 1995-2000 corresponding to an integrated luminosity of 110 pb⁻¹. The decay channel $D^{*+} \rightarrow D^0\pi_s^+$ with $D^0 \rightarrow K^-\pi^+$ is used to identify charm production. A handful of candidate events are observed in the presence of combinatorial background. An upper limit is set on the cross section for charm production in CC DIS for $Q^2 > 200$ (GeV/c)² and $y < 0.9$.

T 404.6 Mo 17:50 TU H2033

Charm photoproduction with taggers at HERA using the ZEUS detector — ●GAYANE AGHUZUMTSYAN — Rheinische Friedrich-Wilhelms-Universität Bonn

Measurements of the production of D^* (2010) mesons in photoproduction using the ZEUS detector at HERA are presented. Electron taggers at 35m and 44m were used to tag D^* in different W regions. The D^* mesons are reconstructed from their decay to D^0 and π^+ with D^0 observed in the decay mode $K^-\pi^+$. Differential cross-sections of D^* production as a function of the transverse momentum and pseudorapidity of the charm mesons have been measured in the kinematic region $p_t(D^*) > 1.5$ GeV and $|\eta(D^*)| < 1.5$. The results are compared with theoretical predictions.