

## T 14: Starke Wechselwirkung (Experiment) I

Zeit: Montag 11:00–12:30

Raum: VMP8 SR 206

T 14.1 Mo 11:00 VMP8 SR 206

**Low Pt heavy flavour production at CMS and ZEUS** — •NAZAR STEFANIUK and ACHIM GEISER — Deutsches Elektronen-Synchrotron (DESY), Notkestrasse 85, Hamburg

The beauty and charm quark masses provide perturbative scales which can be exploited for QCD measurements even in the very low Pt range. The techniques which allow us to go to the minimal threshold in Pt are explained.

The main goal of the analysis is to measure the inclusive heavy flavour cross sections. The study of charm meson production helps to understand the low Pt behaviour of the charm cross section. The extension to low Pt beauty production is also reported.

T 14.2 Mo 11:15 VMP8 SR 206

**Multiplicität geladener Teilchen in pp Kollisionen für den 100MeV Phasenraum mit dem ATLAS Detektor** — •DANIELA BÖRNER<sup>1</sup>, HEATHER GRAY<sup>2</sup>, ALISON LISTER<sup>3</sup> und ROBERTA MARIA DEVESA<sup>4</sup> — <sup>1</sup>Bergische Universität Wuppertal, Wuppertal, Deutschland — <sup>2</sup>CERN, Genf, Schweiz — <sup>3</sup>University of British Columbia, Vancouver BC, Canada — <sup>4</sup>Universidad de Buenos Aires, Argentina

Gemessen werden die Multiplizität geladener Teilchen pro Ereignis, die Abhängigkeit der Anzahl geladener Teilchen zu ihrem transversalen Impuls  $p_T$  und ihrer Pseudorapidität  $\eta$ , sowie die Beziehung zwischen dem gemittelten Impuls  $p_T$  zur Multiplizität geladener Teilchen wird gemessen. Die Daten wurden in Proton-Proton Kollisionen bei einer Schwerpunktsenergie von 13 TeV mit dem Trigger für Minimum Bias am ATLAS-Detektor genommen.

Ereignisse mit mindestens zwei stabilen Teilchen, deren Impuls größer als 100MeV ist und deren Pseudorapidität  $|\eta| < 2.5$  erfüllt, werden selektiert und analysiert. Dieser Phasenraum ist von besonderem Interesse, da er sehr schlecht von verschiedenen Modellen der Soft QCD beschrieben wird.

T 14.3 Mo 11:30 VMP8 SR 206

**Measurement of pseudorapidity distributions of charged particles in proton-proton collisions at  $\sqrt{s} = 13$  TeV by the CMS experiment** — •JUAN MANUEL GRADOS LUYANDO, BENOIT ROLAND, and HANNES JUNG — DESY, Hamburg, Germany

Pseudorapidity distributions of charged-particles,  $N_{ch}/d\eta$ , produced in proton-proton collisions at a centre-of-mass energy of 13 TeV are measured in the pseudorapidity range  $|\eta| < 2.4$  for charged-particles with a transverse momentum  $p_T > 0.5$  GeV. Measurements are presented for three event categories. The most inclusive category corresponds to an inelastic enhanced event sample. The other two categories are disjoint subsets of the inclusive sample that are either enhanced or depleted in single diffractive dissociation events. The measurements are compared to predictions from Monte Carlo event generators which were tuned to describe the underlying event topologies at  $\sqrt{s} = 7$  TeV.

T 14.4 Mo 11:45 VMP8 SR 206

**Determination of the total cross section in proton-proton collisions at the LHC at  $\sqrt{s} = 8$  from elastic scattering using the ALFA sub-detector of ATLAS** — •CHRISTIAN HEINZ, HASKO

STENZEL, and MICHAEL DÜREN — 2. Physikalisches Institut, Universität Gießen

The ALFA (Absolute Luminosity for ATLAS) Roman Pot detector system is part of the forward instrumentation of ATLAS located about 240 m away from the interaction point in the LHC tunnel in both directions. ALFA consists of a scintillating fibre tracker housed in vertical Roman Pots which enables the measurement of elastic proton-proton scattering at small scattering angles. In 2012 data were recorded at a centre-of-mass energy of  $\sqrt{s} = 8$  TeV during a fill with special beam optics of the LHC with  $\beta^* = 90$  m and parallel-to-point focusing.

The four-momentum transfer  $t$  is measured for elastically scattered protons and used to extract the differential elastic cross section. In this talk a preliminary determination of the total cross section and of the slope of the elastic cross section at small  $|t|$  obtained from a fit to the differential cross section using the optical theorem is reported. In addition a second run at  $\sqrt{s} = 8$  TeV with a special beam optics of  $\beta^* = 1$  km, providing access to the Coulomb-nuclear interference region, is being analysed. Preliminary analysis results from this run will be presented as well.

T 14.5 Mo 12:00 VMP8 SR 206

**Observation of soft diffraction with rapidity gaps in the CASTOR calorimeter of CMS** — •MELIKE AKBIYIK, COLIN BAUS, SEBASTIAN BAUR, IGOR KATKOV, RALF ULRICH, and HAUKE WOEHRMANN — Karlsruhe Institute of Technology, Karlsruhe, Germany

Observation of soft diffractive dissociation in pp collisions of LHC Run2 at  $\sqrt{s} = 13$  TeV are presented in kinematics regions defined by the masses  $M_X$  and  $M_Y$  of the two final state hadronic systems separated by the largest rapidity gap in the event. Differential cross sections are obtained as a function of  $\xi_X = M_X^2/s$ . Two samples are distinguished depending on their masses  $M_X$  and  $M_Y$ , one dominated by single dissociation (SD), and other one dominated by double dissociation (DD). The CASTOR calorimeter allow us to detect the hadronic system of the mass  $M_Y$  when it escapes the central detector. The activity (or lack of it) in CASTOR enables to distinguish a SD event from a DD event. The calibration of CASTOR is done using beam halo muon is introduced. Analysis of the obtained muon spectra provides relative response to a muon for each individual read-out channel.

T 14.6 Mo 12:15 VMP8 SR 206

**$\rho^0$  Photoproduktion im H1-Experiment** — •ARTHUR BOLZ — Physikalisches Institut, Universität Heidelberg, Deutschland

Eine Messung des Wirkungsquerschnitts für  $\rho^0$  Photoproduktion ( $\gamma p \rightarrow \rho^0 p$ ) wird vorgestellt. Der Messung liegen elastische Streuprozesse  $e^+p \rightarrow \pi^+\pi^-p$  im Energiebereich  $20 \text{ GeV} < W_{\gamma p} < 90 \text{ GeV}$  und bei kleinem Proton-Impulsübertrag  $|t| < 3 \text{ GeV}^2$  zugrunde, die während der Hochenergieperiode 2006/2007 an der HERA vom H1-Experiment aufgezeichnet wurden.

Der vorhandene Datensatz erlaubt eine präzise Messung des doppelt differentiellen Wirkungsquerschnitts in  $W_{\gamma p}$  und  $t$ , aus der die Pomeron-Trajektorie extrahiert werden kann. Außerdem ermöglicht er eine detaillierte Helizitätsanalyse.