at $p_\perp^2 = 0.5(\text{GeV/c})^2$. They find that $D_{NN} = 0.81 \pm 0.06$ and $K_{NN} = 0.14 \pm 0.06$.

Theoretical papers on polarized beam cross sections submitted to this conference include no. 965 by F Halzen and no. 966 by Halzen and Thomas.

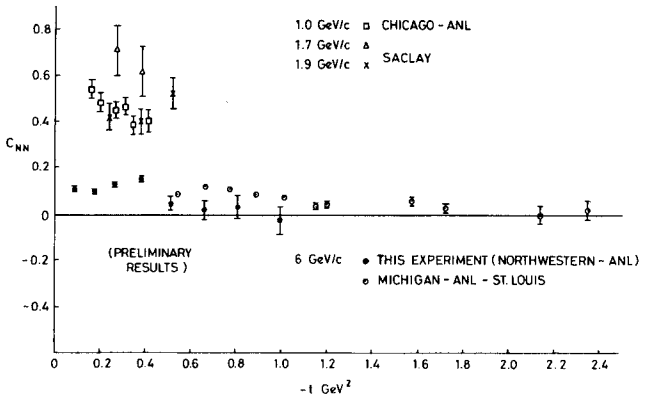

Fig. 2 C_{NN} parameter vs $|t|$ at 6 GeV/c. (RL 16592)

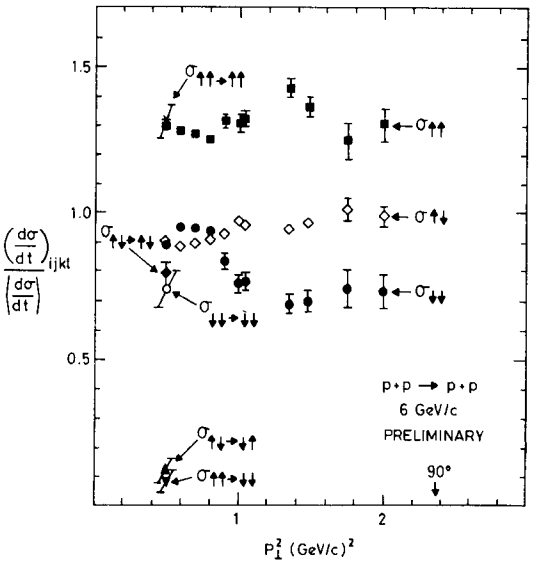

Fig. 3 Differential cross sections for each spin state. (RL16601)

K^-p AND $\bar{p}p$ ELASTIC SCATTERING AND TWO-BODY ANNIHILATIONS AT 6.2 GeV/c

CERN-Ecole Polytechnique-Stockholm-
Orsay-Genova-INFN Collaboration

Presented by T Buran

In an experiment using spark chambers and proportional chambers at the CERN Synchrotron(PS), we have measured the differential cross-sections for the elastic channels K^-p, and $\bar{p}p$ and the annihilation channels of $\bar{p}p$ into $\pi^-\pi^+$ and K^-K^+ at 6.2 GeV/c. Most of the c.m. angular range was covered.

The differential cross-sections at 5.0 GeV/c[1] and at 6.2 GeV/c for $\bar{p}p \to \bar{p}p$ as a function of the cosine of the c.m. scattering angle, are shown in the review talk of Didden's.

We made the following observations:

The dip at about $t = -0.5$ $(\text{GeV/c})^2$ seems to move towards larger t-values as energy increases. The dip remains equally pronounced at 6.2 GeV/c. This behaviour is characteristic of a diffractive dip. However, data at 8.0 GeV/c and 16.0 GeV/c[2] suggest a weakening of the dip structure.

A further dip at about $t = 2.2$ (GeV/c), observed first at 5.0 GeV/c[1], also retains its significance at 6.2 GeV/c and stays constant in t.

The most surprising feature of the data is the apparent constancy of the cross section for $\cos\theta_{cm}$ between -0.5 and 0.0 from 5.0 GeV/c to 6.2 GeV/c, whereas the cross section in the backward direction ($u = 0$) decreases with energy as s^{-10}, as shown in Fig. 1.

According to the parton interchange model of Blankenbecler, Brodsky and Gunion[3] one should expect the cross-section at 90° c.m. to decrease as s^{-10}, as it does at 180°.

This model gives roughly the correct ratio for the $\bar{p}p$ and pp elastic scattering cross sections at 90^{o} c.m. However, we are in an energy region where one could expect the 90^{o} c.m. ratio to be influenced by other incoherent effects in the form of Ericson fluctuations, or coherent effects due to tails of peripheral processes.

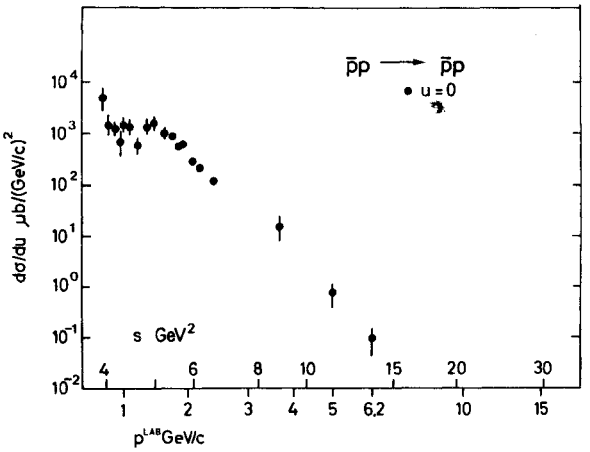

Fig. 1 Differential cross-sections at u = 0 for $\bar{p}p$ elastic scattering as a function of log s. For further reference to these points, see Ref. 1. (RL 16530)

In the annihilation channel $\bar{p}p \to \pi^-\pi^+$ we noticed a dip in the forward direction. This dip could be connected to the one observed at $u \sim -0.18$ $(GeV/c)^2$ in π^+p backward scattering.

The annihilation cross-sections $\pi^-\pi^+$ and K^-K^+, show a decrease in the forward direction consistent with baryon exchange, while the wide-angle cross-sections are decreasing like s^{-10}. In the backward direction the $\pi^-\pi^+$ channel shows a decrease consistent with baryon exchange. No events were observed for the channel K^-K^+.

The K^-p elastic cross-sections as a function of $\cos\theta_{cm}$, at different energies [3.59 GeV/v[4]), 5.0 GeV/c[1]), 6.2 GeV/c and 10.1 GeV/c[5])] are shown in the report from the plenary session.

Unlike the $\bar{p}p$ elastic cross-section, the K^-p cross-section around 90^{o} c.m. shows a rapid decrease with energy. In the last bin of the backward region two events are observed after background subtraction.

Using the slope observed at 5.0 GeV/c for the backward peak, the cross-section at u = 0 is estimated to be 11 ± 10 nb/GeV/c^2. As shown in Fig. 2, this estimate is consistent with a decrease of about s^{-10} for this backward exotic channel.

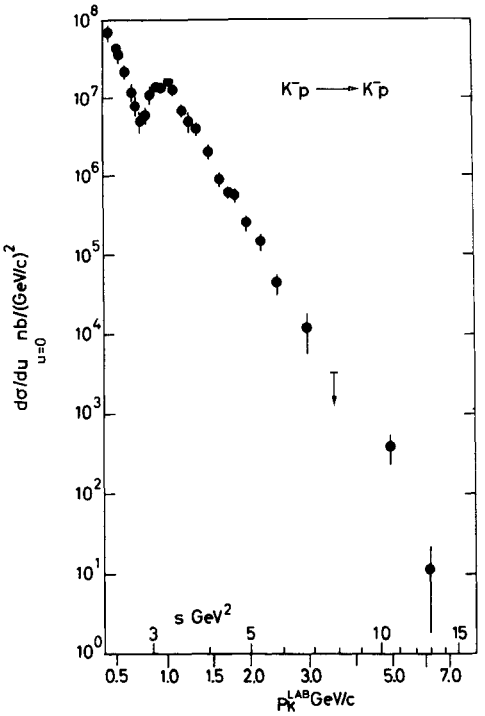

Fig. 2 Differential cross-section at u = 0 for K^-p elastic scattering as a function of log s. For further reference to the points, see Ref. 1. (RL 16529)

References

1. A Eide, P Lehmann, A Lundby; C Baglin, P Briandet, P Fleury; P J Carlson, E Johansson; M Davier, V Gracco, R Morand, D Treille., Nucl. Phys. B60, 173 (1973).