MEASUREMENT OF THE POLARIZATION PARAMETERS FOR $\vec{d}p \to \vec{p}pn$ REACTION IN COMPLETE KINEMATICS (experiment N 145 at Saturne, France)

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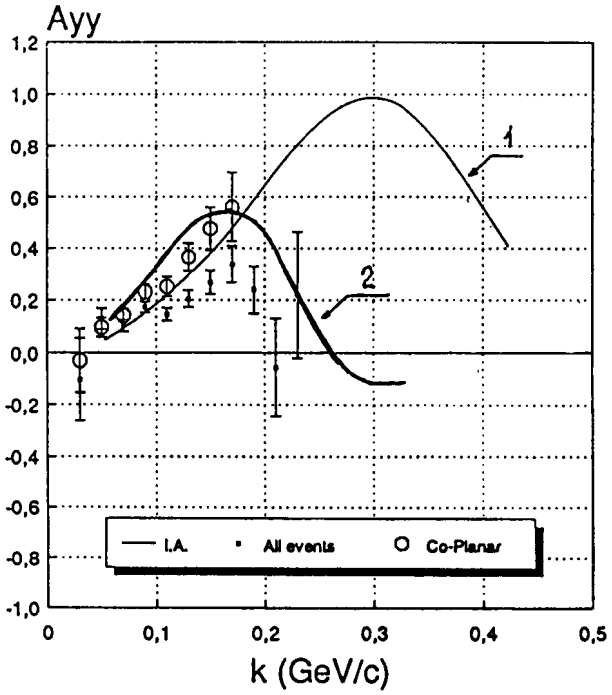
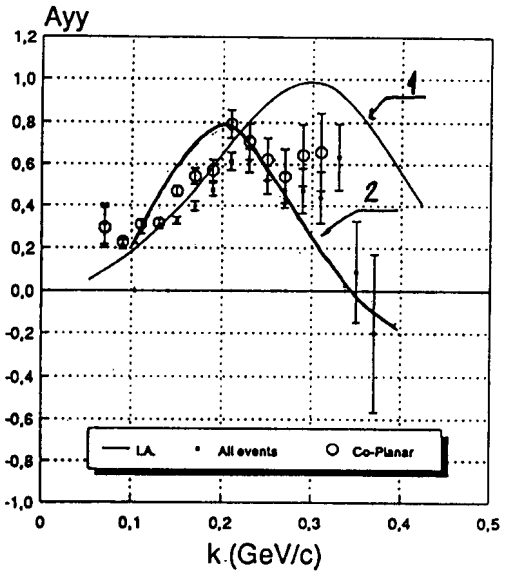
Study of the break-up reactions with the polarized deuterons in the quasi-elatic region provides an independent information on the deuteron *S* and *D*-state wave function behaviour. The complete kinematics deuteron break-up experiment (N 145) at the 2 *Gev* polarized deuterons beam of Saturne aimed at this problem has been done with the help of the two-arm spectrometer consisting of the SPES-4 facility and the POMME polarimeter as a high energy arm at $\Theta_1 = 18.0 \pm 0.5$ *deg.* and the Recoil Spectrometer at $\Theta_2 = 57.0 \pm 4.25$ *deg* [1]. The data treatment has been performed by three groups in Saclay, Budapest, and St.Petersburg and self consistent results have been obtained for the vector A_y, tensor A_{yy} analyzing powers, and also for polarizations of the fast proton. The range $0.04 < k < 0.42$ *GeV/c* of the internal momentum in the deuteron has been covered in five settings of the SPES-4 central momentum: $k1 = 1.6, 1.7, 1.8, 1.9, 2.0$ *GeV/c*. In figs the results of the experiment are presented along with the theoretical curves. Curve 1 is a prediction of the Impulse Approximation (IA) with Paris wave function of the deuteron. The substantial discords with IA are seen at $k > 0.2$ *GeV/c* which could be explained by the deviation of the deuteron wave function in this *k* region from that being used in the calculations, provided IA is correct. On the other hand


Ayy
1,2
1,0
0,8
0,6
0,4
0,2
0,0
-0,2
-0,4
-0,6
-0,8
-1,0
0
0,1
0,2
0,3
0,4
0,5
k (GeV/c)
1
2
I.A.
All events
Co-Planar


Ayy
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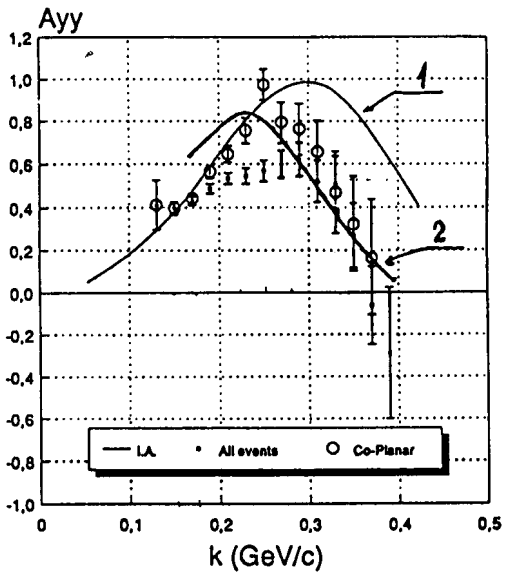
1,0
0,8
0,6
0,4
0,2
0,0
-0,2
-0,4
-0,6
-0,8
-1,0
0
0,1
0,2
0,3
0,4
0,5
k (GeV/c)
1
2
I.A.
All events
Co-Planar


Ayy
1,2
1,0
0,8
0,6
0,4
0,2
0,0
-0,2
-0,4
-0,6
-0,8
-1,0
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0,1
0,2
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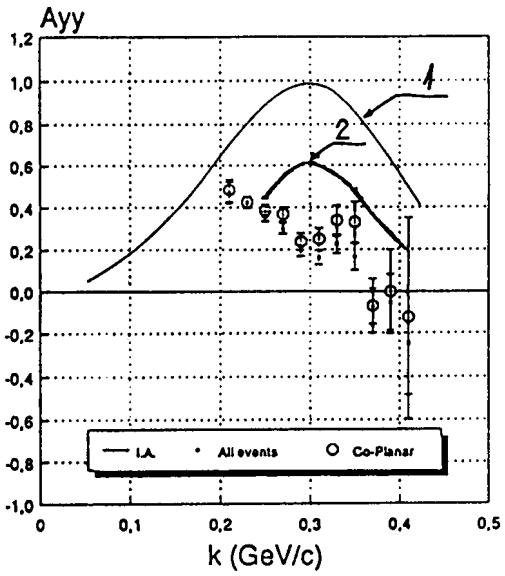
0,4
0,5
k (GeV/c)
1
2
I.A.
All events
Co-Planar


Ayy
1,2
1,0
0,8
0,6
0,4
0,2
0,0
-0,2
-0,4
-0,6
-0,8
-1,0
0
0,1
0,2
0,3
0,4
0,5
k (GeV/c)
1
2
I.A.
All events
Co-Planar

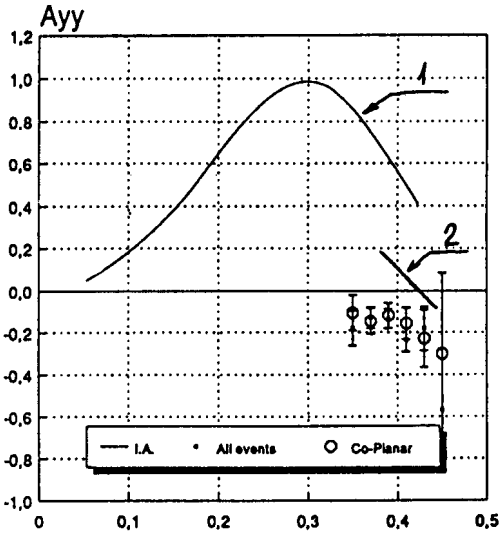

Ayy
1,2
1,0
0,8
0,6
0,4
0,2
0,0
-0,2
-0,4
-0,6
-0,8
-1,0
0
0,1
0,2
0,3
0,4
0,5
1
2
I.A.
All events
Co-Planar

Fig.

one can see that taking into account the corrections due to FSI, NN-rescattering, and Δ-excitation graphs (curve 2) gives a reasonable agreement with the experimental data for A_{yy}. The similar calculations for A_y and the polarization are in progress.

Reference

Belostotsky S.L. et al. LNPI Research Report. 1988-1989. 28.