MEASUREMENT OF THE SPIN CORRELATION PARAMETER $A_{\text{ookk}}(\text{p-p})$ IN THE ENERGY RANGE 0,84 - 1.1 GeV AT SATURNE II

J. Bystricky, P. Chaumette, J. Deregél, J. Fabre, F. Lehar, A. de Lesquen, L.
van Rossum, Julien Fontaine, F. Perrot, J. Ball, et al.

► To cite this version:

J. Bystricky, P. Chaumette, J. Deregél, J. Fabre, F. Lehar, et al.. MEASUREMENT OF THE SPIN CORRELATION PARAMETER $A_{\text{ookk}}(\text{p-p})$ IN THE ENERGY RANGE 0,84 - 1.1 GeV AT SATURNE II. Journal de Physique Colloques, 1985, 46 (C2), pp.C2-479-C2-481. 10.1051/jphyscol:1985261 . jpa-00224578

HAL Id: jpa-00224578

<https://hal.science/jpa-00224578>

Submitted on 1 Jan 1985

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

MEASUREMENT OF THE SPIN CORRELATION PARAMETER $A_{\text{ookk}}(\text{p-p})$ IN THE ENERGY RANGE 0.84 - 1.1 GeV AT SATURNE II

J. Bystricky, P. Chaumette, J. Deregél, J. Fabre, F. Lehar, A. de Lesquen, L. Van Rossum, J.M. Fontaine⁺, F. Perrot⁺, J. Ball⁺⁺, T. Hasegawa⁺⁺, C.R. Newsom⁺⁺, Y. Onel^{*}, A. Penzo^{**} and H. Azaiez^{***}

DPhPE, CEN - Saclay, France

+DPhN/ME, CEN - Saclay, France

++LNS, CEN - Saclay, France

**DPNC, University of Geneva, Switzerland*

***INFN, Trieste, Italy*

****LAPP, Annecy, France*

Résumé - Dans une expérience à SATURNE II nous avons mesuré le paramètre de corrélation de spin $A_{\text{ookk}}(\text{p-p})$ avec le faisceau et la cible polarisés longitudinalement. Nous présentons les résultats à 0.84, 0.88, 0.94 et 1.1 GeV pour Θ_{CM} entre 45° et 90°.

Abstract - In an experiment at SATURNE II we have measured the spin correlation parameter $A_{\text{ookk}}(\text{p-p})$ with longitudinally polarized beam and target. We present results at 0.84, 0.88, 0.94 and 1.1 GeV for Θ_{CM} from 45° to 90°.

Measurements of the angular distribution of the spin correlation parameter $A_{\text{ookk}}(\text{p-p})$ (longitudinally polarized beam and target) were made at five energies 0.84, 0.88, 0.94, 1.0 and 1.1 GeV at SATURNE II. The beam polarization was first rotated into the horizontal plane by the solenoid and then precessed into the longitudinal direction by a bending magnet (Fig. 1). The residual transverse components of the beam polarization in the n and s directions, minimized by the solenoid current and bending angle were continuously monitored by a transverse polarimeter measuring left-right and up-down asymmetries. This allowed to determine the contribution of the A_{oono} analyzing power to the A_{ookk} results. The beam polarization was flipped at each burst, and at each energy two opposite orientations of the target polarization were used.

Fig. 1 - Experimental set-up. SP is a beam intensity monitor, TD and TG are the single counters, H2 and H12 are the counter hodoscopes, C1, C2, C11 and C12 are the wire chambers.

The trigger was four-fold coincidence between TD, TG, Σ_1 H2(i), Σ_1 H12(i) where TD and TG are the single counters and Σ_1 H2(i) and Σ_1 H12(i) are the logic sums of the hodoscope counters. This trigger started the acquisition of the wire chambers C1, C2, C11 and C12 with three wire planes each. About 80% of triggers corresponded to p-p elastic scattering in the polarized target.

The angular dependence of $A_{\text{ookk}}(p-p)$ is shown at 0.84, 0.88, 0.94 and 1.1 GeV in Figs 2 to 5. The data at 0.84 and 0.94 GeV are compared with Argonne results (1,2) and with the predictions of the Saclay-Geneva phase shift analysis (PSA) in the same energy region. The data at 0.84 GeV are also compared with the recent LAMPF measurements at 790 MeV. At the other energies the present results are the first measurements.

Fig. 2 - The angular dependence of A_{ookk} at 0.84 GeV.

Fig. 3 - The angular dependence of A_{ookk} at 0.88 GeV

Fig. 4 - The angular dependence of A_{ookk} at 0.94 GeV .

Fig. 5 - The angular dependence of A_{ookk} at 1.1 GeV .

The Argonne and LAMPF data (1,3) had been measured symmetrically around 90° CM. The systematic difference between the data taken below and above 90° is probably due to a residual normal component of the beam polarization.

The four solutions of PSA given in Fig. 4 described all previous data including Argonne^(1,2). The new results presented here will probably remove the L and S solutions.

REFERENCES

- 1) Auer I.P. et al, Phys.Rev.Lett. (1978) 1436
- 2) Auer I.P. et al, Phys.Rev.Lett. (1983) 1411
- 3) Auer I.P. et al, Phys.Rev. D29 (1984) 2435