Measurement of meson production at the Cosy-11 Facility

J. Balewski, A. Budzanowski, A. Kozela, M. Ziółkowski, L. Jarczyk[1], J. Majewski[1], A. Misiak[1], P. Moskal[1], J. Smyrski[1], M. Sokolowski[1], A. Strzałkowski[1], S. Brauksiepe[2], D. Grzonka[2], M. Karnadi[2], K. Kilian[2], R. Nellen[2], W. Oelert[2], E. Roderburg[2], M. Rook[2], T. Sefzick[2], P. Turek[2], K.H. Watzlawik[2], M. Wolke[2] K.H. Diart[3], H. Gutschmidt[3], M.Jochman[3], M. Köhler[3],R.Reinartz[3], P. Wüstner[3], K. Zwoll[3], H. Dombrowski[4], W.Hamsink[4], A. Khoukaz[4], T. Lister[4], C. Quentmeier[4], R. Santo[4], G.Schepers[4], U.Seddik[5], C.Goodman[6].

[1] *Institute of Physics, Jagellonian University of Cracow,30059 Cracow, Poland,* [2] *IKP, KFA Jülich, 52425 Jülich, Germany,* [3] *ZEL, KFA Jülich, 52425 Jülich, Germany,* [4] *IKP, University of Münster, 48149 Münster, Germany,* [5] *Atomic Energy Authority, P.O. 13759, Cairo, Egypt,* [6] *Indiana University Cyclotron Facility, Bloomington, IN 47408, USA.*

Production of mesons in the proton-proton collision is presently investigated by the Cosy-11 collabortion. Since April 1995 the experimental device is in operation [1]. Its main components are (see fig 1a) • internal cluster target, • dipol magnet for momentum separation, • drift chambers (D1,D2) for track detection, • scintillators (S1, S2, S3) for TOF measurements, • silicon detector (Si-Pad) for detection of negative mesons.

The first measurments of $(\pi^+\pi^-)$, η, η' and (K^+K^-) mesons production were performed. Calibration of detectors and data analysis are in progress.

The preliminary results of $pp \to pp\eta$ measurements at 1.993 GeV/c shows, that the Cosy-11 aparatus is working as designed. Typical event with two reconstructed protons is shown on the fig. 1a. Observed η peak on the missing mass spectrum (fig. 1b) has the width of 2 MeV, caused mainly by the energy resolution of the COSY beam.

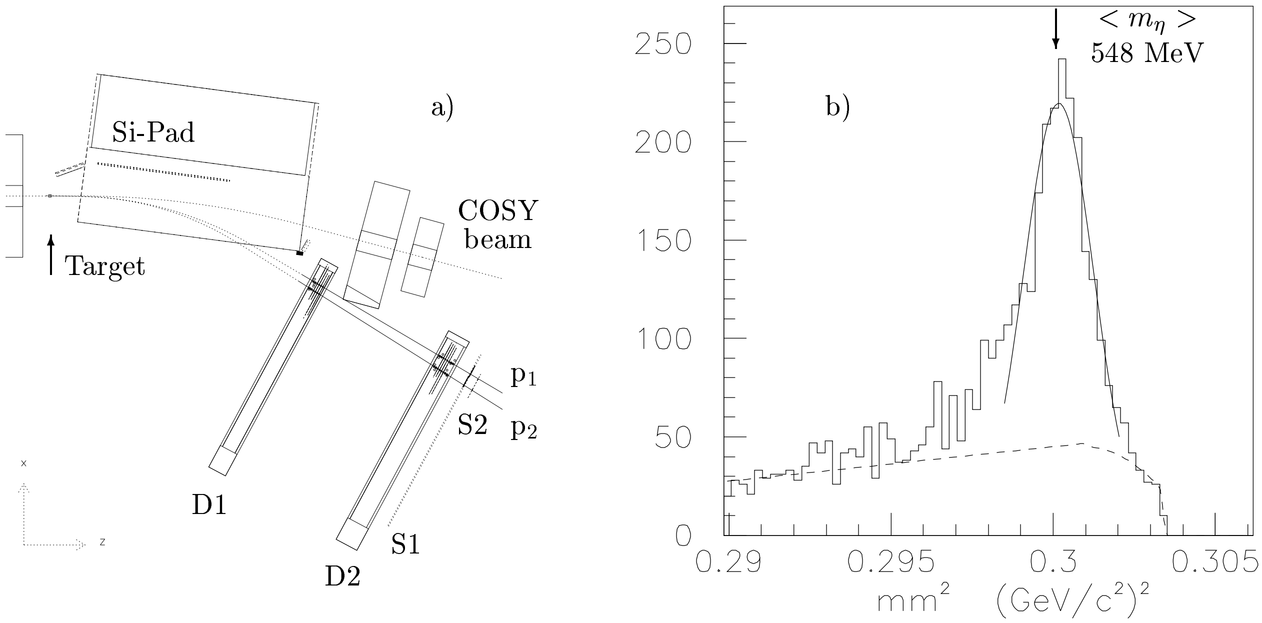

Figure 1: Schematic top view of the detection system (a), missing mass spectrum measured with beam momentum of 11 MeV/c above η production threshold (b).

References

[1] S.Brauksiepe *et al.*, KFA-IKP(I)-1995-1, and to be published in NIM.