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PROPOSAL TO STUDY THE MESONS PRODUCED CENTRALLY IN THE REACTION

$pp \rightarrow pp + X^0$  AND  $\pi^+ p \rightarrow \pi^+ p + X^0$  AT 85 GeV/c

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The basic aim of the experiment is a detailed study of the mesonic system,  $X^0$ , produced centrally ( $X_F = 0$ ) in the exclusive reactions  $(\pi^+/p)p \rightarrow (\pi^+/p)p + X^0$  at 85 GeV/c where little data at present exist. In addition to the total missing mass spectrum of  $X^0$  many different decay modes of  $X^0$ , e.g.  $\pi^+\pi^-$ ,  $\pi^+\pi^-\pi^0$ ,  $2\pi^+2\pi^-$ ,  $2\pi^+2\pi^-\pi^0$ ,  $\eta^0\pi^+\pi^-$ ,  $\omega^0\pi^+\pi^-$ ,  $K^+K^-$ ,  $K^+K^-\pi^0$ ,  $K^{*\mp}K^\pm$ ,  $K^\mp K_1^0\pi^\pm$ ,  $K^+K^-\pi^+\pi^-$ ,  $\phi\pi^0$ , etc. will be identified. A specific aim of the proposal is to search for glueballs in a region where gluon reactions can be expected to occur, Double Pomeron Exchange being an example.

The experiment uses the OMEGA spectrometer facility with a trigger designed to enhance the central exclusive meson production reaction over the diffractive reactions which form the major part of the cross section. This is done by triggering on a forward and backward fast charged particle in the c.m.s. with  $|x_F| > 0.5$  and vetoing accompanying forward and backward charged particles. With  $5 \cdot 10^6$  incident particles per burst (50%  $\pi^+$ , 50% p) on a 60 cm  $H_2$  target a sensitivity of 20 events/nanobarn (including acceptance) will be reached for  $\pi^+$  and p in a 15-day run of the  $H_1$  beam.

(\*) Will participate in setting up and running only.

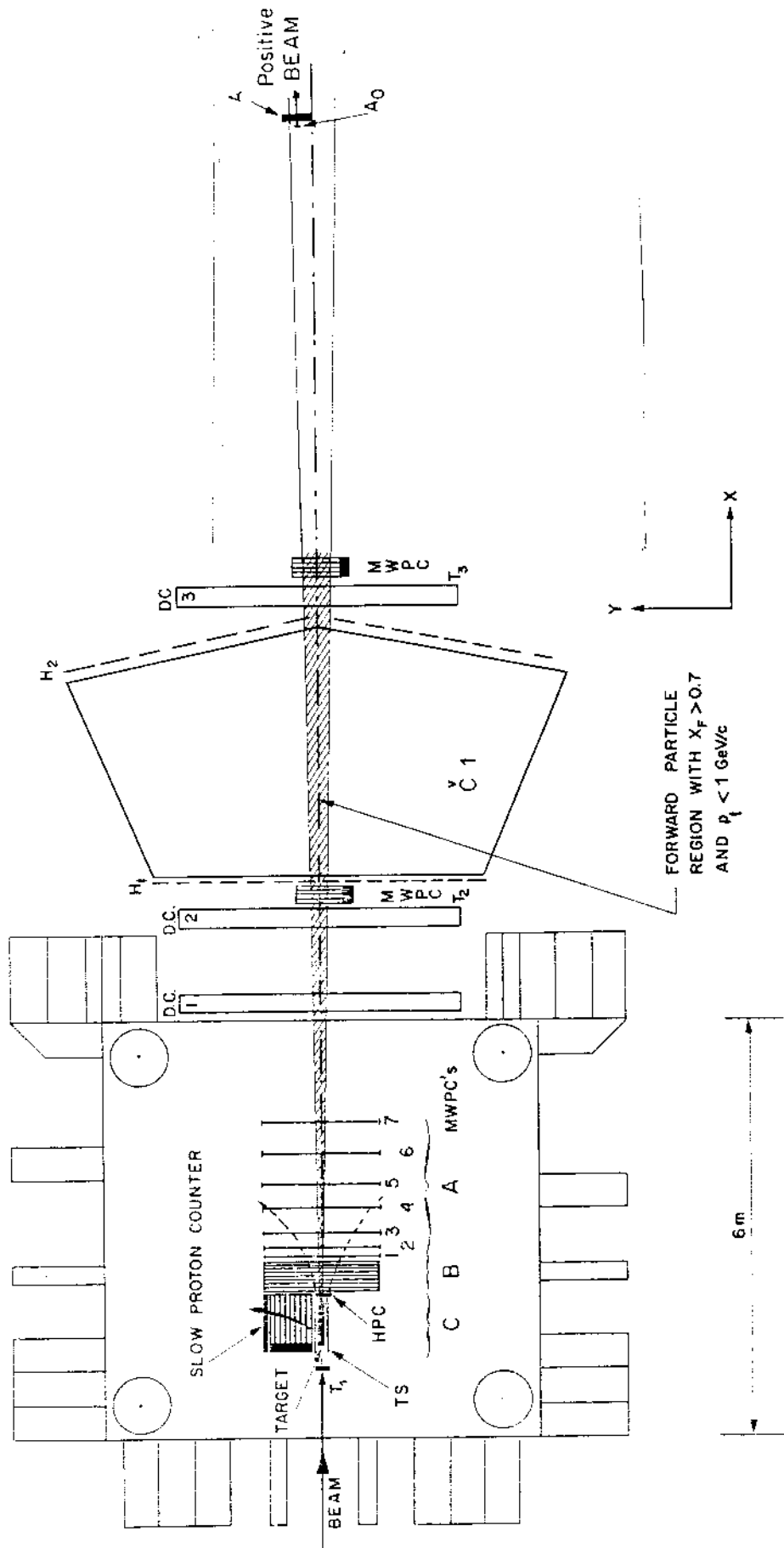


Fig. 6