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PHYSICS I

ELECTRONICS EXPERIMENTS COMMITTEE

K^+ and \bar{p} scattering on polarized protons,
1.0-5.0 GeV/c

by

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M e m o r a n d u m

To : E E C
From : S Andersson, C Daum, F Ern , J P Lagnaux, J C Sens,
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Re : K^{\pm} and \bar{p} scattering on polarized protons, 1.0-5.0 GeV/c

In the past few months an intensive discussion on new polarized targets has taken place within the NP division. Hence, after the submission of our proposal (23.11.1967; see PHI/COM-67/46) and the accompanying letter (24.11.1967) new facts have become available from several sides. In order to clarify the consequences of these discussions on our proposal we should like to state a short conclusion regarding this experiment.

The experiment can be divided into two parts :

a) The region from 1.0 to 2.5 GeV/c, in which we want to measure $\bar{p}p$ scattering, K^-p and K^+p having been done and going to be done elsewhere. From earlier data at three momenta in this region we know that no severe background problem exists due to bound protons, hence the experiment can be done with a LMN target at 18.5 kGauss or an alcohol target at 25 kGauss, i.e. both with conventional magnets and available now.

b) In the region from 2.5 to 5.0 GeV/c, in which we want to measure K^-p , K^+p and $\bar{p}p$ scattering, an alcohol target at 45 kGauss (superconducting magnet) would allow us to improve by a factor 2 to 3 the distinction between free and bound proton events and hence resulting in a more favourable balance between running time and accuracy.

In as far as our preparation for the experiment is concerned the scheduling could be :

a) we shall be ready for the $\bar{p}p$ experiment between 1.0 and 2.5 GeV/c for running in the qx-beam of target 8 or in the m4-beam of target 1 as soon as the shutdown 1968 is finished.

b) for the part between 2.5 and 5.0 GeV/c we envisage starting in the mx-beam of target 8 in the second half of 1969, preferably with an alcohol target in a 45 kGauss superconducting magnet.