Expt : WA 31
Beam: S3
Approved: 21 10 1976
Status:

CERN/SPSC/76-99
SPSC/P 65/S
November 17 1976

P R O P O S A L T O T H E SPSC

THE STUDY OF PROMPT LEPTON PRODUCTION IN ANTIPROTON-PROTON INTERACTIONS AT 70 GeV/c IN BEBC EQUIPPED WITH A TRACK SENSITIVE TARGET

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SUMMARY OF THE PROPOSAL

A 300 000 picture exposure of BEBC (preferably with EMI) to a beam of antiprotons of 70 GeV/c is requested The chamber should be filled with a H_2-Ne mixture ($\sim$ 25/75 mole %) and equipped with the neutrino TST filled with hydrogen

The use of BEBC with a TST allowing for a detailed analysis of prompt $e^{\pm}$ production reactions could bring complementary information on the origin of these phenomena The occurence of (e-e) (e-μ) and (μ-μ) correlations as well as the production of strange particles in prompt lepton events will be investigated Although a 300 000 picture exposure with 3 $\bar{p}$/picture would only lead to the observation of $\sim$ 100 genuine prompt electrons (assuming an inclusive e/π ratio $\sim 10^{-4}$) this experiment should definitely determine whether prompt leptons are produced singly (e g in the leptonic decays of new particles) or in pairs (directly or through the decay of known vector mesons)

We anticipate that quite apart from the problem of direct lepton production part of the film will be used to provide valuable information to the systematic study of $\bar{p}p$ interactions in particular in connection with π°-production

The experiment should mainly require scanning with a comparatively low measurement effort For this at least 8 BEBC scanning tables and 3 measurement devices will be available