

CERN LIBRARIES, GENEVA



CM-P00045600

CERN/SPSC 78-104
SPSC/M 133
14 September 1978

M E M O R A N D U M

To: Members of the SPSC
From: C.M. Fisher and H. Leutz
Subject: Proposal SPSC P/113

The attached proposal was produced quickly in view of the immediate interest in the direct detection of charm tracks and decay vertices (hence lifetime and cross section measurements) and the consequent urgency to go ahead with the project as fast as possible if approved. The experiment has been discussed in detail by the physics collaboration (hence Letter of Intent **P** 110), however, most members have not had an opportunity to comment on the form of this proposal before submission. We therefore give at this stage only the laboratories involved. A complete list of participating physicists will be communicated to the committee as soon as possible.

Technically, work has been proceeding for some time at the Rutherford Laboratory and at CERN to establish the track conditions required to detect charmed particles (if $\tau \geq 10^{-13}$ s) produced in hadronic reactions. Subsequently, a lexan chamber has already been constructed. Initial tests have started and if approved the chamber could proceed to cold tests and debugging quickly. We intend to make use of much existing equipment (cryogenics, optics etc.) from other CERN chambers which is well tried and tested.

Questions such as the possibility to couple the initial run with an existing spectrometer to provide momentum measurements have not yet been explored, however, we feel that any ensuing complications would not justify a delay in the initial search. In the longer term, we would anticipate such a program with the EHS. Initially, the primary objective is to

establish the existence of the short track signal in the accessible lifetime window and to measure the associated cross sections.

In view of the somewhat hasty production we apologize for any defficiencies in the presentation.