

EHS: STATUS OF PART B

A proposal for the European Hybrid Spectrometer charged particle identification (part B) [1] has been submitted to the SPSC on August 10th, 1978.

This proposal represents the conclusions of a special EHS users meeting, held at CERN on June 28th, 1978, where status reports were given on the tests made on SAD (silica-aerogel detector) (S. Tavernier), and on ISIS (W. Allison), as well as a presentation of the characteristics of a Forward Cerenkov (M. Benot) and of transition radiation detectors (M. Deutschmann).

The proposal is completed by a series of EHS notes giving more details on:

- the silica-aerogel detector (CERN/EP/EHS/PH 78-9),
- the design of ISIS and the results of tests with ISIS 1 (CERN/EP/EHS/PH 78-10),
- remarks concerning the design of a forward Cerenkov FC (CERN/EP/EHS/PH 78-11),
- the transition radiation detector TRD (CERN/EP/EHS/PH 78-12),
- Montecarlo simulation studies of charged particle identification (CERN/EP/EHS/PH 78-13).

It has been shown that the identification of charged particles in the first lever arm of the EHS spectrometer is best obtained with the use of SAD and ISIS. It is therefore requested that the SPSC approves as soon as possible this part of the proposal.

It is also shown that most of the research programme which can be considered for EHS, requires the identification of the fast particles which reach the second lever arm. But this part is more dependent upon the details of the experiments which will be finally approved. For TRD, it also depends upon the results of more elaborate tests done at CERN in September 1978. The proposal therefore asks the SPSC to provide, for the time being, general support for design studies and tests, so that a full recommendation could be anticipated early in 1979.

The tests done at CERN in 1977 and 1978 have shown that all the technical problems which are met with the use of silica-aerogel and magnetic shielding can be solved. It requires the use of a shielding plate in front of SAD. The effect of this shielding plate on the vertex magnet M1 and on the performances of the spectrometer has been studied and found to be acceptable.

The tests done at RL on ISIS 1 have shown that the concept of ISIS is valid and that the performance of ISIS 2 may be expected to be close to the predictions. However, an effective use of ISIS with EHS still needs long periods of setting-up and software analysis. - It is therefore proper to bring ISIS 1 to CERN as early as possible in 1979 in such a way that measurements with background and beam can be performed and that the software problems can be solved under real operating conditions before the installation of ISIS 2.

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[1] CERN/SPSC/78-91, SPSC/P42/Add.5 (26 July 1978)

Annex

- CERN/SPSC/78-91, SPSC/P42/Add.5
- CERN/EP/EHS/PH 78-9, 78-10, 78-11, 78-12