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EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

Addendum to the proposed experiment on the  $\beta$ -decay of the  $\Lambda$

It may turn out that, due to a large number of accidental tracks in the spark chamber or low efficiency for observing multiple tracks, it is not possible to carry out the experiment exactly as described in the proposal. Possible alternatives are as follows.

1. Divide the spark chamber into two with separate trigger units, thus improving the efficiency for multiple tracks. Accidental tracks would be eliminated by leaving the region where the beam passes through ( $\sim 1.5$  cm high) deliberately insensitive.
2. Reduce the beam rate by a factor of  $\sim 4$ . Regain at least this factor by triggering only on  $\Lambda$ 's without requiring the  $K^0$  to decay in the chamber. Some of the observed  $\Lambda$ 's will be produced in the carbon in the polyethylene target. Since the  $K^0$  is not observed, these cannot be distinguished by simple kinematic fittings of the production event. However, if use is made of the electron energy measured in the shower detector and the proton energy measured by its range, then a hydrogen event is overdetermined by one degree of freedom. Reconstruction of the event can still be carried out completely.
3. Carry out the experiment as in (2) but do not distinguish carbon events from hydrogen events. The values of the correlation coefficients can then be obtained by averaging over the proton motion in the carbon.

Method 3 can be used on the events rejected in Method 2.

Whichever method is used two additions will certainly be made.

- (a) A small spark chamber will define the incoming beam track.
- (b) The pulse height in the shower detector will be recorded to measure the electron energy.

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