

(n,p) STUDIES AT 120 MEV

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Feasibility studies of a temporary (n,p) facility in the beam swinger area at the northwest corner of the experimental hall were conducted in June and November. In addition, a background test was carried out parasitically on a (p,n) run. The results of these studies are:

1. The unexpectedly large backgrounds observed at angles less than about 5 degrees were shown to originate from primary beam hitting the exit of the swinger dump magnet vacuum chamber.

2. Quite acceptable spectra can be obtained with hyper-pure germanium detectors at angles larger than 5 degrees where backgrounds are reasonable.

3. Radiation degradation of the performance of the hyper-pure germanium detectors observed in earlier

tests is not seen with the lower backgrounds present at angles beyond 5 degrees.

4. (n,p) studies are feasible, for selected targets at forward angles, with the present geometry in this temporary location. However, the exit port of the swinger dump magnet must be modified to remove the source of background.

During the November run, an old magnet, used to bend the protons out of the neutron flux into the detectors developed an irreparable water leak in its coils. For the next run, it is planned to replace this magnet with a smaller magnet, eliminate the background problem by remachining the exit port of the dump magnet, and improve the detector array. A data taking run with the improved facility is planned for April 1984.