BROOKHAVEN NATIONAL LABORATORY
Associated Universities, Inc.
Upton, New York

ACCELERATOR DEPARTMENT
Informal Report

INTERSECTING STORAGE ACCELERATOR NOTES

Coulomb Induced Deuteron Break-Up of ISABELLE

B. Gobbi and J. Rosen
University of Rochester

August 2, 1972

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Considerable interest has been expressed in the possibility of a deuteron beam option for ISABELLE.

We have asked ourselves the question: "What is the cross section for deuteron break-up induced by the Coulomb field interaction?" Using the well established $\gamma + d \rightarrow n + p$ cross section data and the value for the enormous center of mass energy of ISABELLE, we have calculated the cross section using the Weizsäcker-Williams formula.

The answer is:

$$\sigma = 0.3 \text{ mb}$$

This is a large reaction channel and must be reckoned with in any experimental planning. It is not so large as to preclude any of the proposals presently being advanced.

It is amusing to note in this connection that the reaction is initiated in the Coulomb field at impact parameters ranging out to $\sim 30\text{\AA}$.