

6E11 Preliminary Expansion-Acceleration Experiments in the Maryland ERA.\* W.W. DESTLER and M.J. RHEE, Univ. of Maryland.--In the Maryland ERA, a hollow, rotating, relativistic electron beam is produced by passing a straight, hollow beam through a narrow magnetic cusp. The properties of such a beam propagating in a magnetic field suitable for the expansion-acceleration of ion-loaded electron rings have been studied under a variety of experimental conditions. Beam energy is about 3 MeV, and beam current propagating downstream of the cusp transition is in the range 2-10 kA. Fast magnetic probes have been used to estimate the axial velocity and current density of the downstream beam as a function of applied magnetic field and axial position. Time-resolved photographs of the downstream beam cross section have been obtained using a fast image converter camera. The effects of ion loading on the beam cross section and axial velocity are currently being investigated, and the results of preliminary ion acceleration experiments will be presented.

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