6 G-3 Effects of Drift Chamber Geometry on the Axial and Radial Confinement of the Hollow, Rotating, Relativistic Electron Beams of the Maryland ERA,* M.J. RHEE, W.W. DESTLER, D.W. HUDGINGS and M.P. REISER, U. Maryland. --The effect of drift chamber geometry on the axial and radial confinement of hollow, rotating, nonneutral relativistic electron rings and E-layers has been investigated using the Maryland ERA facility. A hollow, nonrotating beam is passed through a narrow magnetic cusp, and the resulting rotating beam propagates inside a cylindrical or coaxial vacuum chamber, with either solid or "squirrel cage" conducting surfaces. Downstream beam energy and current are 2.5 MeV and 1-8 kA, respectively. Fast, integrated $\dot{B}$ probes and time-resolved photographs of the downstream beam cross section have been used to infer the beam radial and axial dimensions and average beam density as a function of axial position in the downstream drift region. Results will be discussed in the context of desired beam parameters for ion heating and collective ion acceleration.
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