Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

The HelCat Helicon-Cathode Device at UNM BRICETTE CYRIN, CHRISTOPHER WATTS, MARK GILMORE, RALPH KELLY, ALAN LYNN, SHUANGWEI XIE, LINCAN YAN, YUE ZHANG, University of New Mexico —
The HelCat helicon-cathode device is a dual-source linear plasma device that has recently begun full operation at the University of New Mexico. HelCat is 4 m long, 50 cm diameter, with axial magnetic field < 2.2 kG. An RF helicon source is at one end of the device, and a thermionic BaO-Ni cathode is at the other end. Discharge characteristics and fluctuations are strongly affected by the grounding scheme at the cathode source end. Thus, in a series of recent experiments we have investigated the effect on the dual source discharge of alternatively floating the anode, cathode, or both. In addition, a movable probe feedthrough utilizing a ball valve type connection is being developed. This movable probe will allow measurement in the azimutha and axial, as well as radial, directions, thereby permitting 2D and 3D mapping of the plasma parameter profiles and fluctuations.

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Date submitted: 14 Jul 2008 Electronic form version 1.4