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Electron plasma behavior during autoresonant dioctron excitation[1] C.J. BAKER, J.R. DANIELSON, N.C. HURST, C.M. SURKO, University of California, San Diego — A novel multicell Penning-Malmberg trap is currently being studied as a way to trap and store up to 10^{12} positrons using kV confinement potentials.[2,3] A test structure has been constructed to conduct preliminary experiments. It consists of a large diameter "master" cell and four smaller diameter "storage" cells, three of which are off-axis. To load the multicell trap, plasma in the master cell is moved off-axis to radial displacements $D \gg r_p$, where r_p is the plasma radius, before being transferred axially into off-axis storage cells. Details of the radial transfer process, which relies upon the autoresonant excitation of the dioctron mode,[4] will be discussed, as well as the plasma behavior during the axial transfer process.[5]

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[2]Danielson, Weber, Surko, *Phys. Plasmas* **13**, 123502 (2006).
[3]Danielson, Hurst, Surko, AIP Conf. Proc. **1521**, 101 (2013).
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[5]Hurst, Danielson, Baker, Surko, *Phys. Rev. Lett.*, **113** 025004 (2014).

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