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**Measurement of the growth/damping rate of the $m$=1 diocotron mode in a toroidal electron plasma** A.R. KNOEDLER, M.R. STONEKING, F. CHOUDHURY, Dept. of Physics, Lawrence University, Appleton, WI — The $m$=1 diocotron mode is induced in a toroidal electron plasma (the Lawrence Non-neutral Torus II) by connecting an RC circuit to a sector of the conducting boundary. The relationship between the circuit impedance and growth or damping rate of the mode has been measured and compared to results from cylindrical Penning-Malmberg traps [W.D. White, J.H. Malmberg, and C.F. Driscoll, Phys. Rev. Lett. **49**, 1822 (1982)] and to the results of numerical modeling of the mode in toroidal geometry. Attempts to compare the growth or damping rate of the mode in the partial torus to that in the full torus will be presented. The relationship between the shape of the end potentials of the partial torus and the growth or damping rate of the mode is explored and compared to expectations from rotational pumping theory [S.M. Crooks and T.M. O'Neil, Phys. Plasmas **2**, 355 (1995)]. This work is supported by the National Science Foundation, Grant PHY-0812893.

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