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**Recent Experiments with Toroidal Pure-Electron Plasma – Trivelpiece-Gould Modes, Diocotron Mode Damping, and Asymmetry Modes in the Lawrence Non-neutral Torus II** M.R. STONEKING, A.S. PATTERSON, A.R. DOARES, M. PRICE, Department of Physics, Lawrence University, Appleton, WI 54911 — Electron plasma is confined using a purely toroidal magnetic field ( $R_o = 18$  cm,  $B < 550$  G) for times ( $\sim 1$  s) that are much longer than any of the dynamical timescales of the system. The Lawrence Non-Neutral Torus II (LNT II) can be operated as a partial torus in which plasma is confined in C-shaped toroidal sectors or as a fully toroidal, closed field trap. We present results of recent wave excitation and damping studies in LNT II, including the first observations of Trivelpiece-Gould waves in toroidal electron plasma, measurements of the dependence of the  $m = 1$  diocotron mode damping rate on magnetic field, plasma position, and neutral pressure, and first observations of asymmetry modes in a toroidal electron plasma. Efforts are also underway to enhance the magnetic field strength and augment the diagnostic capabilities of the apparatus. This work is supported by the National Science Foundation – Award #1202540.

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