

Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Update on the design and construction of an ultra high vacuum, kiloGauss scale toroidal electron plasma experiment M.R. STONEKING, BAO HA, D.P. RYAN, Department of Physics, Lawrence University, Appleton, Wisconsin 54912 — A toroidal electron plasma experiment is under construction at Lawrence University, a four-year college in Wisconsin. The design of the experiment ($B_o = 1$ kG, $R_o = 18$ cm, $a = 2$ cm) is informed by results and experience gained operating an existing toroidal device ($B_o = 200$ G, $R_o = 43$ cm, $a = 4.5$ cm).

¹ We provide an update on the design and construction of the new experiment, and present recent results from the existing experiment that yield confinement times as long as 40 ms. These results encourage the expectation that the new device will achieve confinement times of the order of 1 second, permitting measurement of long timescale transport processes. This work is supported by NSF and USDOE.

¹M.R. Stoneking *et al.*, Phys. Rev. Lett. **92**, 095003 (2004)

Matthew Stoneking
Lawrence University

Date submitted: 20 Jul 2005

Electronic form version 1.4