

Abstract Submitted  
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**Overview of recent results from the Columbia Non-neutral Torus and future plans**<sup>1</sup> THOMAS SUNN PEDERSEN, Columbia University, J.W. BERKERY, A.H. BOOZER, Q.R. MARKSTEINER, M.S. HAHN, P.W. BRENNER, B. DURAND DE GEVIGNEY, J.P. KREMER, R.G. LEFRANCOIS, H. HIMURA, Kyoto Inst. of Tech., Kyoto, Japan — The Columbia Non-neutral Torus (CNT) is a compact, two-period stellarator created from four circular coils, dedicated to the study of non-neutral and electron-positron plasmas on magnetic surfaces. First results include the confirmation that pure electron plasmas can be confined stably in a stellarator, with confinement times of up to 20 msec. Transport is driven by the perturbing presence of internal rods, as well as by electron-neutral collisions. CNT has started operating with a retractable emitter allowing operation without internal rods, eliminating this source of transport. Reducing the neutral driven transport by reducing the neutral pressure to less than  $2 \times 10^{-10}$  Torr, a confinement time exceeding 1 second is predicted. Despite the long confinement times, the collisional transport rate is much higher than expected from neoclassical predictions. In fact, confinement times are on the order of the electron-neutral collision time, possibly caused by bad orbits despite the large radial electric field. This poster will give an overview of recent CNT results and future plans.

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Thomas Sunn Pedersen  
Columbia University

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