

Abstract Submitted  
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**Overview of the Columbia Non-neutral Torus program<sup>1</sup>** THOMAS SUNN PEDERSEN, JOHN BERKERY, ALLEN H. BOOZER, MICHAEL HAHN, JASON P. KREMER, REMI LEFRANCOIS, QUINN MARKSTEINER, Columbia University — The Columbia Non-neutral Torus (CNT) is an experiment designed to study pure electron, electron-positron and partially neutralized plasmas in a stellarator. Stellarators have unique properties as charged particle traps, in particular the ability to confine plasmas at an arbitrary degree of neutralization all the way from pure electron to quasineutral plasmas. CNT has been in operation since November 2004, and experiments with non-neutral plasmas are now being conducted. An overview of the CNT program will be presented. This includes recent studies of pure electron equilibria and instabilities seen in electron plasmas with a finite ion content. Ongoing and future work on ion resonant instabilities, operation with a retractable emitter, and plans for electron-positron plasma research will also be discussed.

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Thomas Sunn Pedersen  
Columbia University

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