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Overview of first results from the Columbia Non-neutral Torus<sup>1</sup> T. SUNN PEDERSEN, J.P. KREMER, R. LEFRANCOIS, Q. MARKSTEINER, A.H. BOOZER, J. BERKERY, Columbia University, X. SARASOLA, CIEMAT, H. MYNICK, N. POMPHREY, PPPL — The Columbia Non-neutral Torus (CNT) is now in full operation. CNT is a stellarator dedicated to creating and studying non-neutral plasmas confined on magnetic surfaces, both pure electron and partially neutralized plasmas, and to the creation of the first laboratory electron-positron plasmas. The existence of ultralow aspect ratio nested magnetic surfaces without significant islands or stochastic regions has been confirmed, and the first non-neutral plasmas have been created using thermionic emitters inserted directly into the confined region. The confinement time can be as long as 20 ms, and seems to be limited by transport induced by the presence of the emitter and diagnostic rods that penetrate the electron plasma. Fully 3-D calculations of CNT pure electron equilibria have now been obtained and neoclassical transport calculations including the effects of strong electric fields have been performed. An overview of these and other CNT related results will be presented, along with plans for the second year of operation.

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