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Overview of recent results from CNT[1] THOMAS SUNN PEDERSEN[2], ALLEN H. BOOZER, PAUL W. BRENNER, BENOIT DURAND DE GEVIGNEY, XABIER SARASOLA, PETER TRAVERSO, Columbia University — This poster will give an overview of recent results from The Columbia Non-neutral Torus (CNT). CNT was recently reconfigured by repositioning the internal coils, creating magnetic surfaces substantially different from those previously used. Field line mapping, confinement, and stability results will be summarized; they are covered in more detail in adjacent posters. Numerical studies of drift orbits will be presented. Toroidal resonances and electrostatic perturbations can create complicated unconfined orbits in CNT, which can affect confinement negatively but also provides ways of injecting electrons, or positrons. The issue of Debye shielding in a non-neutral plasma is discussed. Debye screening is very different compared to the textbook calculation for a quasineutral plasma. The ability to affect drift orbits with external electrostatic perturbations may be used to inject electrons or positrons across the magnetic surfaces. An update on the plans for an electron-positron plasma experiment will also be given.

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