

Abstract Submitted
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Vacuum Magnetic Field Mapping of the Compact Toroidal Hybrid (CTH)¹ J.T. PETERSON, J. HANSON, G.J. HARTWELL, S.F. KNOWLTON, C. MONTGOMERY, J. MUNOZ, Auburn University — Vacuum magnetic field mapping experiments are performed on the CTH torsatron with a movable electron gun and phosphor-coated screen or movable wand at two different toroidal locations. These experiments compare the experimentally measured magnetic configuration produced by the as-built coil set, to the magnetic configuration simulated with the IFT Biot-Savart code using the measured coil set parameters. Efforts to minimize differences between the experimentally measured location of the magnetic axis and its predicted value utilizing a Singular Value Decomposition (SVD) process result in small modifications of the helical coil winding law used to model the vacuum magnetic field geometry of CTH. Because these studies are performed at relatively low fields $B = 0.01 - 0.05$ T, a uniform ambient magnetic field is included in the minimization procedure.

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