

Abstract Submitted
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3D Equilibrium Reconstruction of Current-Driven Discharges in the Compact Toroidal Hybrid with Magnetic Diagnostics A. STEVENSON, J. HANSON, G. HARTWELL, J. HEBERT, S. KNOWLTON, Physics Department, Auburn University, Auburn, AL 36849 USA — The capability of rapidly reconstructing 3D equilibria in toroidal confinement experiments is important to understand the stability and confinement of fusion plasmas. Plasma reconstructions using the V3FIT 3D magnetic equilibrium reconstruction code [1] are performed using magnetic diagnostics in the Compact Toroidal Hybrid (CTH). CTH is a heliotron device in which the magnetic configuration can be strongly modified by an ohmic plasma current. Currently, signals from several sets of segmented and full Rogowski coils measuring the poloidal field provide the experimental input to V3FIT which utilizes the VMEC equilibrium code [2] to reconstruct 3D plasma equilibria. A movable array of Hall probes is being built to measure the interior poloidal field and will be included in plasma reconstruction to provide better resolution of the current profile. Supported by US DOE Grant DE-FG02-00ER54610.

[1] J. D. Hanson et al, Nucl. Fusion 49, 075031 (2009)

[2] S. P. Hirshman and D. K. Lee, Comput. Phys. Commun. 39, 161(1986)

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