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Overview of the Compact Toroidal Hybrid Experiment[1] G.J. HARTWELL, R.F. KELLY, S.F. KNOWLTON, C. MONTGOMERY, J.T. PETERSON, B.A. STEVENSON, Auburn University — The Compact Toroidal Hybrid (CTH) is a device used to study the physics of magnetically confined fusion energy related plasmas. CTH is a five-field period, low aspect ratio (R/a $\geq$ 3.5) torsatron that has a continuously-wound helical coil and a toroidal field coil set that allows the base vacuum rotational transform to be varied. The device parameters are R = 0.75 m, a_{vessel} = 0.29 m, a_{plasma} < .2 m, B $\leq$ 0.6 T. Equilibrium, shaping, and ohmic current drive are provided by four independent poloidal field coil sets. The CTH missions are to use ohmic current to investigate current-driven ideal and resistive instabilities and disruptions in stellarators, and to test new 3-D equilibrium reconstruction procedures for helical confinement devices. Following vacuum field mapping studies, second harmonic electron cyclotron heating at 18 GHz will be pursued using an initial diagnostic set including probes, H_α monitors, and a microwave interferometer. Ohmic operation with equilibrium reconstruction will be implemented subsequent to these studies. An overview of the CTH project will be presented that will include the status of the CTH experiment and plans for the near future.

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