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Recent Progress in Compact Toroidal Hybrid Research[1] D.A. MAURER, M. CIANCIOSA, J.D. HANSON, G.J. HARTWELL, J.D. HEBERT, J.L. HERFINDAL, S.F. KNOWLTON, M.C. ARCHMILLER, P. TRAVERSO, M. PANDYA, X. MA, Auburn University — The Compact Toroidal Hybrid (CTH) experiment is investigating the passive avoidance of disruptions with the addition of a small amount of vacuum transform provided by external coils. In ohmically-driven stellarator plasmas, disruption suppression depends upon the particular disruption scenario. Recent progress on the suppression of low edge q, density limit, and vertically unstable plasma disruptions is overviewed. Interpretation of these results makes use of 3D equilibrium reconstructions using the V3FIT code [1]. Several new diagnostic tools, including new magnetic sensors for MHD fluctuation studies, a multipoint Thomson scattering system, and a 2D soft x-ray two-color camera system are under development to further enable our understanding of CTH disruption dynamics. Future research directions, including plans for an island divertor, will be discussed.

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

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