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Density Limit Disruption Studies in the Compact Toroidal Hybrid Experiment JAMES KRING, DAVID MAURER, GREGORY HARTWELL, STEVEN KNOWLTON, DAVID ENNIS, JAMES HANSON, Auburn University — The Compact Toroidal Hybrid (CTH) is a torsatron/tokamak hybrid capable of substantially varying the magnetic configuration by having rotational transform supplied predominantly by either currents in external helical coils or internal plasma currents. The addition of plasma current increases the rotational transform of the system causing it to have a tokamak-like profile. Observed density limit disruptions are investigated as a function of the vacuum and fractional transform applied to an ensemble of discharges. Experimentally increasing the vacuum transform allows for plasma densities to surpass an estimate of Greenwald density limit without using core fueling methods. Results of a study of disruption phenomenology utilizing a recently upgraded interferometer diagnostic to measure profile peaking and SXR and bolometry arrays to characterize the radiative properties of the plasmas. * Work supported by USDOE grant DE-FG02-00ER54610

James Kring
Auburn University

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