

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

A Database Investigation of Advanced Tokamak Mode Disruptivity in DIII-D¹ A.W. HYATT, D.A. HUMPHREYS, T.C. LUCE, P.L. TAYLOR, General Atomics — A fully realized Advanced Tokamak (AT) mode plasma runs steady-state. Therefore the disruptivity of an AT plasma is best described by a probability of disruption per second, rather than per shot. Previous analyses of DIII-D overall disruptivity have estimated $\sim 13\%$ per-shot-disruptivity for all operating regimes [1], and AT regime per-shot disruptivity of $\sim 5\%$ [2]. We expand a 3-year DIII-D experimental operation database to add all identified AT discharges for comparison. Each shot in this database that does not reach the end of programmed flattop is analyzed to identify the cause of premature termination. Rampdown is not analyzed. A complete time history of selected data is associated with each shot, so a disruptivity frequency can be calculated for each phase of a shot as a function of the time spent in that phase. We report on the results of this disruptivity analysis for all AT shots, and compare them with similar analysis for the 3 continuous years' shots.

[1] A.W. Hyatt, et al., Bull. Am. Phys. Soc. **45**, 279 (2000).

[2] T.C. Luce, review talk, submitted to Phys. Plasmas (2010).

¹Supported by the US Department of Energy under DE-FC02-04ER54698.

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Date submitted: 19 Jul 2010

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