Summary of Paper EX/P3-8
Developing Disruption Warning Algorithms Using Large Databases on Alcator C-Mod and EAST Tokamaks

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As one possible approach to developing robust real-time disruption warning algorithms, we have created databases containing values for a number of relevant plasma parameters versus time for a large set of disruptive *and* non-disruptive discharges from both the Alcator C-Mod and EAST tokamaks.

- So far, we have examined the ability of the parameters such as: I_p error, P_{rad}/P_{input}, and V_{loop} to predict disruptions with a useful amount of warning time.

- We find that each of these parameters can reliably predict about 1/3 of impending disruptions on EAST with at least 30 ms warning time, with a false positive rate of 0.9%.

- However, on C-Mod, these parameters do not reliably predict disruptions, even 10 ms before they occur. This may indicate that disruptions in high-energy density, high-Z machines are less predictable than low-energy, carbon machines
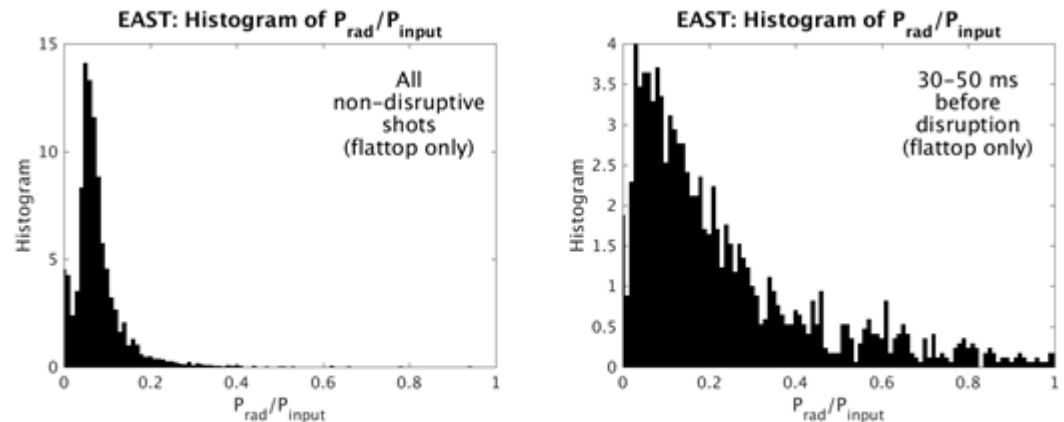

Fig 7a,b – Histograms of P_{rad}/P_{input} on EAST for (a) flattop times from all non-disruptive shots, (b) between 30 to 50 ms before disruptions. The difference in the histogram shapes is quite obvious.