

Studies of Alfvén Eigenmodes in the ITER Baseline Scenario, Sawtoothing JET Plasmas, and MAST H-D Plasmas

- α -driven TAEs in ITER baseline scenario were found to saturate ≈ 50 times below the α -stochasticity threshold, Fig.1
- Fast ions drive TAEs, EAEs, NAEs, and ACs throughout sawtooth cycle in JET. These AEs exhibit a complex interplay with sawteeth via fast ions stabilizing the sawteeth
- High time resolution ECE shows inverse dependence between sawtooth periods and sawtooth crash times, Fig.2; the latter determines energy of fast ions redistributed by the crash
- CAEs were suppressed in ion-ion hybrid frequency range in D-H plasma on MAST; a similar effect is expected in D-T mix

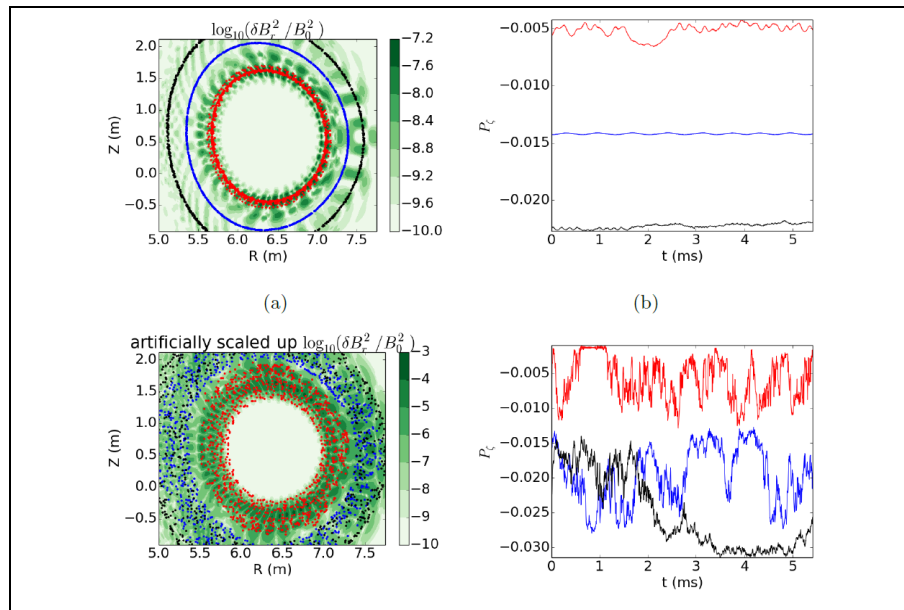


Fig.1. α -driven TAEs in ITER baseline scenario (top) saturate at level ≈ 50 times lower than stochasticity threshold (bottom).

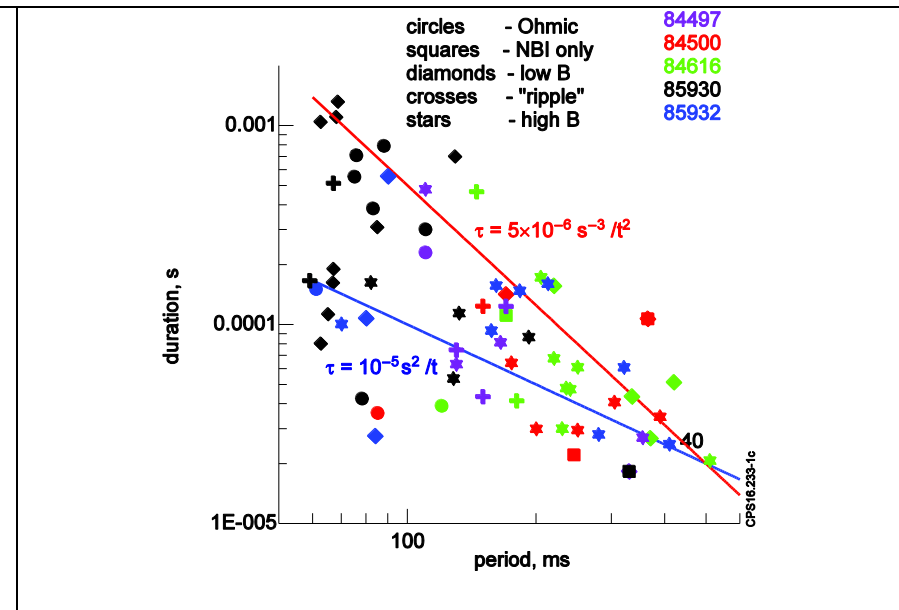


Fig.2. Correlation between sawtooth crash times and sawtooth periods, for several types of JET sawteeth.

