

A. Suppression of TAE and GAE with HHFW heating

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This talk reports on analysis of experiments where ≈ 3 MW of high-harmonic fast wave (HHFW) heating was successful in completely suppressing energetic particle modes (fishbones), toroidal Alfvén eigenmodes (TAE) and global Alfvén eigenmodes (GAE) activity. Previous experiments have explored the use of RF to suppress frequency chirping, but here we see complete suppression of the modes. The suppression is not immediate, but takes some 10's of ms, suggesting that the HHFW is modifying the distribution of fast ions, or possibly other equilibrium plasma parameters. Neutron rate and NPA data show no indication of excessive fast ion losses with HHFW, although NPA data suggests some phase-space redistribution is happening. The target plasma was not usual (low plasma current Helium plasmas), future experimental work will explore extending this suppression technique to more typical conditions.