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Hybrid MHD/particle simulation study of sub-cyclotron Alfvén Eigenmodes in NSTX JEFF LESTZ, ELENA BELOVA, N.N. GORELENKOV, Princeton Plasma Physics Laboratory — Low toroidal mode number, high frequency compressional (CAE) and global (GAE) Alfvén Eigenmodes are often driven unstable by super-Alfvénic beam ions in NSTX. These modes have been identified as part of an energy channeling mechanism that may explain observed anomalous electron temperature profile flattening in beam-heated NSTX discharges [1]. 3D hybrid simulations using the HYM code are conducted to study the excitation and stability properties of such CAE and GAE modes in NSTX and NSTX-like plasmas. HYM allows for the self-consistent simulation of these modes with a delta-f particle treatment of the energetic beam ions coupled to a single fluid resistive MHD model of the thermal plasma. Particular attention is paid to the sensitivity of CAE/GAE excitation on parametric changes in the equilibrium beam ion distribution function, among other factors.

[1] E.V. Belova, et al., Phys. Rev. Lett. **115**, 015001 (2015).

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