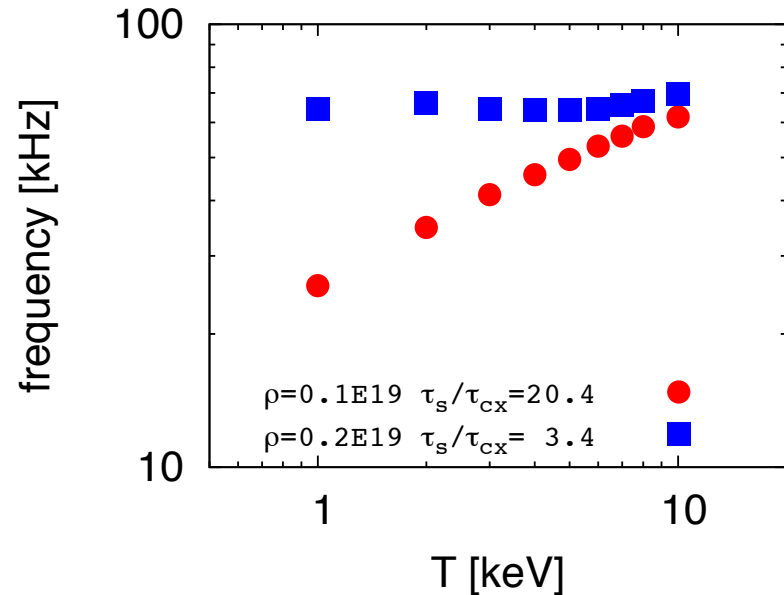
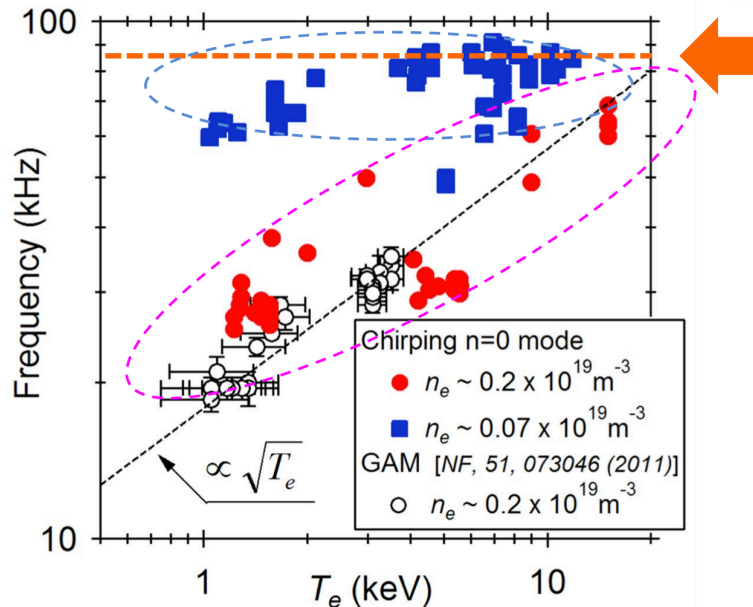


Simulation Study of A New Kind of Energetic Particle Driven Geodesic Acoustic Mode (EGAM)

TH/P1-12

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❖ Both the traditional EGAM and new EGAM which has weak bulk plasma temperature dependency of frequency are observed in LHD (left figure), and reproduced by MEGA code (right figure).

❖ Three conditions are important for new EGAM excitation: 1) energetic particle distribution is bump-on-tail; 2) high energetic particle β value; 3) low bulk density.

❖ The primary resonance is a higher-order resonance $\omega_{\text{EGAM}} = (l/k) \omega_{\theta}$ with $l/k=3/5$, where ω_{θ} is particle transit frequency in poloidal direction.