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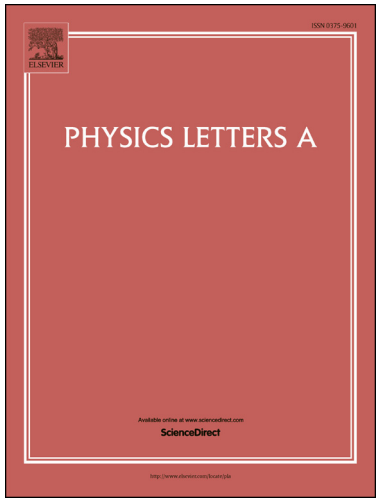

Geodesic mode instability driven by electron and ion fluxes during neutral beam injection in tokamaks

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Highlights

- Effect of a minor concentration of the energetic particles due to NB injection on geodesic acoustic mode (GAM) spectrum is analyzed.
- Using shifted Maxwell distribution for all plasma species, fully kinetic treatment is applied to study GAMs.
- The instability occurs due to its cross term of the electron supersonic velocity of the current with ion flow, as well with energetic ion drift.
- Splitting of GAM spectrum by the effective mass renormalization of energetic particles is found.
- Qualitative confirmation of the theory with co/counter NB injection experiments in COMPASS tokamak is demonstrated.