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Gyrokinetic Simulation of Phenomenology of GAMs

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The global full f nonlinear gyrokinetic code ELMFIRE is used for simulating geodesic acoustic modes (GAMs) over a wide range of parameters. For radial wavelength of GAMs, the agreement between analytic value and simulation results is shown to be good for low collisional regime which is not the case with high collisionality. The isotope scan considering hydrogen, deuterium, tritium and helium was done changing the isotope while keeping all the other parameters fixed. The speed of the radial GAM propagation is shown decrease and radial wavelength is shown to increase as a function of mass. Results are compared to analytic estimates and experimental measurements at the FT-2 and Textor tokamaks.

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