# Parametric excitation of GAMs by electron drift and ion temperature gradient modes in tokamak plasmas[*].

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The geodesic acoustic modes (GAMs) are readily observed in tokamak plasmas. Recently we have shown that they can be excited nonlinearly by three wave resonant mode coupling to electron drift waves and ion temperature gradient modes which are known to be unstable and are responsible for anomalous transport in these devices. We will present results on the analysis and the characteristics of the excited GAMs which are determined by the spatial properties of the primary modes. We have extended our earlier calculations, in which a GAM was excited by resonant coupling to two electrostatic drift waves, to include finite beta effects. The electromagnetic drift waves can excite GAMs with a zonal field. The zonal field in fact introduces a threshold condition for the mitigation of GAM excitation by drift waves. The most significant finite beta effect occurs in the edge region of toroidal plasmas, where the steep density gradients can make the magnitude of the drift frequency become comparable to the shear Alfven frequency.

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