

Abstract Submitted  
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**Nonlocal theory for the excitation of geodesic acoustic modes by drift waves**<sup>1</sup> P.N. GUZDAR, IREAP, University of Maryland, College Park, MD, USA, N. CHAKRABARTI, SINP, Kolkata, India, R.G. KLEVA, IREAP, University of Maryland, College Park, MD, USA, V. NAULIN, J.J. RASMUSSEN, Association EURATOM - Risø DTU, Roskilde, Denmark, P.K. KAW, R. SINGH, IPR, Gandhinagar, India — The geodesic acoustic modes (GAMs) are typically observed in the edge region of toroidal plasmas. Drift waves have been identified as a possible cause of excitation of GAMs by a resonant three-wave parametric process. A nonlocal theory of excitation of these modes in inhomogeneous plasmas typical of the edge region of tokamaks has been developed. The continuum GAM modes with coupling to the drift waves can generate discrete “global” unstable eigenmodes localized in the edge “pedestal” region of the plasma. These global eigenmodes have a two space scale character. The “fast” radial scale is determined by a three-wave frequency matching condition while the “slow” scale is determined by the ambient density and temperature inhomogeneity scale-lengths.

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