

Seminar

Institute for Plasma Research

Title : Geodesic acoustic modes
Speaker : Rameswar Singh, and O D Gurcan
Laboratoire de Physique des Plasmas, Ecole
Polytechnique, 91128 Palaiseau Cedex, France
Date : 2nd December 2014, Tuesday
Time : 11.00 AM
Venue : Seminar Hall, IPR

Abstract:

Starting from the Braginskii equations, relevant for the to kamak edge region, a complete set of nonlinear equations for the geodesic acoustic modes (GAM) has been derived which includes collisionality, plasma beta and external sources of particle, momentum and heat. Equations for GAMs are obtained by taking appropriate flux surface average s of the reduced Braginskii equations. The method reveals nearest neighbour coupling of poloidal modes (m), due to geodesic curvature, leading to a semi-infinite chain model of GAM in linear limit. This work fully answers the m -structure of GAM. Convergence of GAM dispersion with respect to radial wave number k_r is studied by terminating the chain at different m values. Good convergence is obtained at high values of $m > 10$ challenging the conventional understanding of m -composition of GAMs.
