

Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

ExB shear damping of geodesic acoustic mode in tokamak

RAMESWAR SINGH, Institute for Plasma Research, Bhat, Gandhinagar - 382 428, Gujrat, India , OZGUR D GURCAN, LPP, Ecole Polytechnique, F-91128 Route de Saclay, Palaiseau Cedex, France — ExB shearing effect on geodesic acoustic mode (GAM) is investigated both as an initial value problem in the shearing frame and as an eigenvalue value problem in the lab frame. The novel effects are that ExB shearing couples the standard GAM perturbations to their complimentary poloidal parities. The resulting GAM accquires an effective inertia increasing in time leading to GAM damping. Eigenmode analysis shows that GAMs are radially localized by ExB shearing with the mode width being inversely proportional and radial wave number directly proportional to the shearing rate for weak shear. The physics of GAM disappearance during LH transition will be discussed.

Rameswar Singh
Institute for Plasma Research

Date submitted: 14 Jul 2017

Electronic form version 1.4