Geodesic Acoustic Propagation and Ballooning Mode Formalism M.B. LI, Konryun Mt. A&M Univ., P.H. DIAMOND, U.C. San Diego, G.G. YOUNG, Zhejiang Univ, M. ARAKAWA, Kobe Woman's College — Relevance of ballooning formalism (BMF) in nonlinear interaction of toroidal electromagnetic drift waves in the presence of zonal flows and Geodesic Acoustic Oscillation (GAO) is critically examined from a physical argument of radial propagation of wave packets. To achieve the quasi-translational invariance of poloidal harmonics which is necessary for the BMF, the geodesic curvature induced transfer [1] of fluctuation energy in radial direction should occur faster than the time scale of physical interest. Of course, this does not happen necessarily in drift-Alfven (DALF) turbulence simulations [2]. This observation casts considerable doubts on the applicability of various codes based on the BMF concept to nonlinear electromagnetic problems.

[1] B. Scott, Phys. Letters A 320 (2003) 53. [2] B. Scott, New J. Phys 7 (2005) 92.

M.B. Li
Konryun Mt. A&M Univ.

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