

Abstract Submitted
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Transport studies of Toroidal Angular Momentum carried by Drift Resonance of Toroidal Ion Temperature Gradient Instability near Marginality¹ E.S. YOON, T.S. HAHM, Princeton Plasma Physics Laboratory — We calculate transport of parallel momentum carried by drift resonance of toroidal ITG instability near marginality using quasilinear theory starting from a phase space conserving gyrokinetic equation [1] for ions. The principal results are: TEP pinch remains inward as the most robust term of pinch. In addition, ion temperature gradient driven pinch is inward for typical parameters. Interestingly, density gradient driven pinch is outward as in the previous kinetic results in slab geometry [2], but opposite to the results in the fluid regime [3]. Parameter dependency of momentum diffusivity and pinch velocity on the electron to ion temperature ratio ($\tau = T_e/T_i$) has been examined over a wide range of density profiles.

[1] T.S. Hahm, Phys. Fluids, **31** 2670 (1988)

[2] P.H. Diamond, C.J. McDevitt, and .D. Gürçan, *et. al.*, Nuclear Fusion, **15** 012303 (2008)

[3] A.G. Peeters, C. Angioni and D. Strintzi, Phys. Rev. Lett., **98** 072302 (2007)

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E.S. Yoon
Princeton Plasma Physics Laboratory

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