

Abstract Submitted
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Momentum Theorems in Gyrokinetic Plasmas¹ T.S. HAHM, Princeton Plasma Physics Laboratory, Princeton University, Princeton, NJ 08543, USA, P.H. DIAMOND, University of California, San Diego, La Jolla, CA 92093, USA, LU WANG², Princeton Plasma Physics Laboratory, Princeton University, Princeton, NJ 08543, USA, K. MIKI, University of California, San Diego, La Jolla, CA 92093, USA — Momentum balance relations for Zonal flows in drift wave turbulence in fusion plasmas have recently been derived using the inviscid invariance of potential vorticity, [P. H. Diamond, et. al., submitted to Plasma Phys. Control. Fusion (2008)] extending the work by Charney and Drazin [J. Geophys. Res. 66, 83 (1961)] in geofluid dynamics. This work reports on the gyrokinetic extension of the momentum theorems. We exploit the equivalence of polarization density and vorticity in the long wavelength limit, as well as the Taylor identity for the Reynolds' stress.

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