Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Transport in two-fluid MHD turbulence ELLEN KUMAR, E. KIM, Univ. of Sheffield — We present a theory of transport of magnetic flux and momentum in two fluid 3D reduced magnetohydrodynamic (MHD) turbulence. By including the effects of shear flows and magnetic fields consistently, we show that kinetic Alfven waves can help weaken the quenching in turbulent transport of a strong magnetic field B_0 found in single fluid MHD turbulence, leading to turbulent diffusivity $\eta_T \propto (\eta/\Omega)^{1/3} B_0^{-2}$. Here, η and Ω are Ohmic diffusivity and shearing rate of the shear flow. Momentum transport is diffusive, with the value of eddy viscosity larger than that in single fluid MHD turbulence. The effects of drift waves are found to be weaker. Implications for the instability of shear flows are discussed.

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Date submitted: 20 Jul 2007 Electronic form version 1.4