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Passive advection in a collisionless plasma ANJOR KANEKAR, Univ of Maryland-College Park, ALEXANDER SCHEKOCHIHIN, University of Oxford, GREG HAMMETT, Plasma Physics Laboratory, Princeton University, WILLIAM DORLAND, Univ of Maryland-College Park, NUNO LOUREIRO, IPFN, Instituto Superior Tecnico, Universidade de Lisboa — We consider a simple kinetic model for the evolution of the particle distribution function in a magnetized turbulent plasma that includes both phase mixing (Landau damping) and advection by a stochastic velocity field: a “kinetic passive scalar” in the Batchelor regime. The advection due to stochastic velocity field allows for a stochastic version of the plasma echo by coupling the “phase-mixing” and the “un-phase-mixing” components of the free energy. We have developed a new analytical framework to diagnose the efficiency of such coupling. We have also developed a new GPU code named Gandalf that solves this kinetic model numerically. In this poster, we shall present numerical and analytical results related to this work.

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