

Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Parallel closures in the collisionless limit¹ JEONG-YOUNG JI, ERIC HELD, Utah State University — We have obtained closures in the collisionless limit by solving the drift kinetic equation (DKE) using the Fourier transform along the magnetic field line. When zeroth-order parallel gradients in the Maxwellian exist, integral parallel closures in the collisionless limit are obtained by solving the zeroth order DKE. When flux surfaces exist, however, the parallel gradients are first order and nontrivial closures are obtained by solving the first order DKE, which includes perpendicular gradients of the Maxwellian distribution. The closures are expressed in terms of perpendicular gradients of temperature and parallel derivatives of temperature and flow velocity. Modifications to existing neoclassical transport theory for the banana regime which uses a flux surface average will be discussed.

¹Research supported by the U.S. DOE under grant Nos. DE-FG02-04ER54746, DE-FC02-04ER54798 and DE-FC02-05ER54812. Work performed in conjunction with the Plasma Science and Innovation (PSI) Center and the Center for Extended MHD Modeling (CEMM).

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Date submitted: 14 Jul 2011

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