Transport, noise, and conservation properties in gyrokinetic plasmas\textsuperscript{1} THOMAS JENKINS, W.W. LEE, J.L.V. LEWANDOWSKI, PPPL —

The relationship between various transport properties (such as particle and heat flux, entropy production, heating, and collisional dissipation) \cite{Lee88} is examined in electrostatic gyrokinetic simulations of ITG modes in simple geometry. The effect of the parallel velocity nonlinearity on the achievement of steady-state solutions and the transport properties of these solutions is examined; the effects of nonadiabatic electrons are also considered. We also examine the effectiveness of the electromagnetic split-weight scheme \cite{Lee01} in reducing the noise and improving the conservation properties (energy, momentum, particle number, etc.) of gyrokinetic plasmas.

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