

Abstract Submitted
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Determining where collisions and nonlinearity are significant using the G-transform J. M. HENINGER, P. J. MORRISON, University of Texas at Austin — The effects of collisions and nonlinearity are often localized in phase space. We present a technique to determine where collisions and nonlinearity have been most significant. The G-transform, an integral transform based on the Hilbert transform, converts the linearized equations of motion for the distribution function into a simple advection equation. We apply the G-transform to the distribution function at any time, undo the linear behavior (including Landau damping) using the solution to the advection equation, and then transform back. Comparing this quantity to the initial conditions for the distribution function shows where in phase space the collisions and nonlinearity have modified the distribution function.

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