

Abstract Submitted
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Recent progress on a discontinuous Galerkin method for Vlasov-like systems¹ Y. CHENG, Michigan State University, I.M. GAMBA, P.J. MORRISON, The University of Texas at Austin — A discontinuous Galerkin (DG) method for integrating the Vlasov-Poisson system [1] is described and generalized. Higher order polynomials on basis elements are used in recent calculations and an extensive error analysis has been performed. In particular, recurrence properties have been examined in detail. The method is conservative and a limiter is designed to preserve positivity of the distribution function. Several linear and nonlinear examples will be presented that elucidate the DG methods ability to resolve filamentation and obtain high resolution BGK states. Progress on adaption of the algorithm to a kinetic ITG model and the Maxwell-Vlasov system will be discussed.

[1] R.E. Heath, I.M. Gamba, P.J. Morrison, and C. Michler, *J. Comp. Phys.* **231** 1140 (2012).

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