

Abstract Submitted
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An implicit, higher-order, electromagnetic Vlasov solver¹
ALEXANDER STAMM, FRANK LEE, BRADLEY SHADWICK, University of Nebraska - Lincoln — The development of an electromagnetic Vlasov solver in the 1.5 dimensional coordinate system (1 spatial, 2 velocity coordinates) will be discussed. A comparison of 2nd and 4th order temporal methods will be shown, and extension to higher order phase space discretizations will be discussed. The Weibel instability will be used for comparison to an analytical van Kampen solution to the linear theory as well as to macro-particle methods. This comparison will provide the means of understanding the role of conservation behavior (charge, momentum, and energy) for a given computational efficiency.

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