Abstract Submitted
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Grid-Free Particle Method for Electrostatic Plasmas[1] ROBERT KRASNY, LYUDMYLA BARANNYK[2], University of Michigan, BENJAMIN SONDAY, Princeton University, ANDREW CHRISTLIEB, JINGMEI QIU, Michigan State University — A grid-free particle method for electrostatic plasmas is presented. The method is based on the Lagrangian formulation of the Vlasov-Poisson equations in terms of the flow map of the charge distribution. We employ several numerical techniques including: (1) regularizing the Coulomb singularity, (2) adaptive particle insertion, and (3) a treecode algorithm to accelerate the evaluation of the electric field. Simulations are presented for the instability of collisionless electron beams.

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