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Collisionless Phase Space Equilibria NATHANIEL WATKINS, University of Pennsylvania, JAMES JUNO, University of Maryland, AMMAR HAKIM, PPPL, JASON TENBARGE, Princeton University — According to Boltzmann's H-theorem, all collisional processes eventually relax to a Maxwellian particle distribution function, as that particular form maximizes the entropy. However, despite the lack of collisions, collisionless plasmas are often observed to be in a quasi-Maxwellian state. This work will determine the universality of equilibrium states in collisionless plasmas by examining the relaxation of the two-stream and Weibel instabilities, through the continuum Vlasov-Maxwell model implemented in the Gkeyll simulation framework. The timescale and final state of the collisionless equilibration will be analyzed.

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