



Real mass ratio Vlasov simulations of the nonlinear evolution of the ion-acoustic instability

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Collisionless magnetic reconnection requires the violation of ideal MHD by various kinetic-scale effects. Recent research has highlighted the potential importance of wave-particle interactions by showing that Vlasov simulations of unstable ion-acoustic waves predict an anomalous resistivity that can be significantly higher in the nonlinear regime than the quasi-linear estimate. Here, we describe of a new Vlasov simulations code with real mass ratio. We show initial results from the Vlasov simulations code. We investigate the dependence on the initial electron drift velocity of the current driven ion-acoustic instability and its resulting anomalous resistivity and we examine a range of drift velocities and for electron to ion temperature ratios. The parameters are relevant to both solar and magnetospheric physics.