

Plasma mixing processes via Kelvin-Helmholtz instability

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Transport mechanism of the solar wind plasma into the magnetosphere in the situation of northward IMF has been a hot topic in the space

plasma physics. Recent observations suggest that the low latitude boundary layer is a candidate for a source of plasmas, where Kelvin-Helmholtz instability is unstable.

In order to understand a transport mechanism of plasmas, one needs to take account of the kinetic effects of plasma particles. At this point of view, some kinetic simulations had been carried out. Some hybrid simulations of K-H instability had been carried out, and had reported that the finite gyroradius effect of the ions enhance the diffusion in a uniform background magnetic field.

So far, we have studied the electron inertia effect to a mixing process of plasmas as well as the ion finite radius effect. We have found that the different motion between ions and electrons effects the global structure. We will report this effects precisely with the results of two fluid MHD simulation and full particle simulations.