

Three-dimensional instability of reconnection jet in the magnetotail

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When a reconnection jet encounters a pre-existing plasma sheet standing ahead of it, the interface between the two where both plasma and magnetic field are compressed becomes unstable to interchange-type instability driven by the magnetic tension force and develops a bubble-like structure. We have performed a number of three-dimensional hybrid simulations (ions as particles and electrons as massless charge neutralizing fluid) of the instability. We suggest that the instability generates a variety of transient plasma flows and magnetic field configurations that could have relevance to the non-uniform bursty plasma, energy, and magnetic flux transportation in the magnetotail.

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