

## Magnetic neutral line formation in three-dimensional spontaneous fast reconnection

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Theoretically and numerically, it is still unclear how the three-dimensional fast magnetic reconnection occurs in a one-dimensional current sheet often observed in space plasma explosive phenomena, such as geomagneto-tail. This previous study showed that the classical two-dimensional fast reconnection is unstable for three-dimensional resistive perturbation. It means that two-dimensional fast reconnection can be spontaneously destabilized in the sheet current direction even in an exactly one-dimensional current sheet. In this presentation, it is reported that the magnetic neutral lines are intermittently formed and disappear and its formation tends to be guided to the sheet current direction.

Keywords: Three-dimensional magnetic reconnection, MHD, Magnetic neutral line, instability