

## **Magnetic field reconnection in space plasmas**

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Magnetic field reconnection plays an important role in the dynamics of geomagnetic storms, substorms, and flux transfer events at the Earth's magnetopause. It explains observed signatures of current sheets in the solar wind and of magnetosheath turbulence. Additionally, it is an essential element of coronal heating and solar wind origin scenarios.

Because such plasma environments are weakly collisional or collisionless, the formation of quasi-singular current sheets, possibly achieving kinetic scales, is required for reconnection to be of any dynamical consequence.

In this talk, we will present an overview of the progress made over the last several years in understanding the trigger of fast reconnection in dynamically forming current sheets. We will focus on two paradigms: the onset of tearing mode in thin current sheets and forced reconnection. We will discuss the conditions that favor or inhibit reconnection, with implications for explaining energetic events and reconnection in space plasma turbulence.