



Electron acceleration in the separatrix region during collisionless magnetic reconnection

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In this talk, I will review electron acceleration in the separatrix region during magnetic reconnection. The results are obtained the spacecraft measurement in the magnetotail. The reconnection separatrices represent the surface (cross curve in two-dimensional regime) separating the reconnected magnetic field lines from the reconnecting lines, and thereby connect to the reconnection X-line. The average properties of the particle distribution and physical processes in the separatrix region are summarized. Recent studies confirm that various instabilities occur in the separatrix region and lead to a complex interplay and affecting the plasma in this region. The microphysics in the separatrix region should play an important role in reconnection dynamics. Furthermore, electrons are accelerated up to 100 keV before they enter into the electron diffusion region: a significant part of energy conversion takes place in the separatrix region during reconnection.