

# Particle Acceleration of Driven Magnetic Reconnection

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## *Abstract*

Understanding of non-thermal particle acceleration in a current sheet is an important problem in space and astrophysical plasmas, and magnetic reconnection has been investigated as a key element of not only plasma heating but also nonthermal particle acceleration. Yet the acceleration efficiency of ions and electrons in reconnection is not clearly understood. For example, the satellite observations in the Earth's magneto-tail reported the relatively efficient electron acceleration event during the plasma sheet crossing in reconnection, but the ion acceleration events are few. The particle-in-cell (PIC) simulation studies also suggested less acceleration for ions and efficient acceleration for electrons. In this study, we investigate how and where the ions are accelerated during reconnection by using PIC simulation. Specifically, we focus on the effect of the so-called driven reconnection with an external Poynting flux injection into the plasma sheet, and discuss that the reconnection can generate quite a few nonthermal particles even if the driven Poynting flux is weak.