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Suprathermal electron acceleration at reconnection jet fronts and braking regions in the Earth's magnetotail

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Magnetic reconnection is an efficient mechanisms for accelerating charged particles to energies much higher than their thermal energy. Important examples are the solar corona and planetary magnetospheres. A number of recent numerical simulations as well as in situ observations in Earth's magnetotail indicate that strong acceleration occurs at reconnection jet fronts, the boundary separating jetting from ambient plasma, and in jet braking regions, where jets eventually stop/dissipate. Yet the details of the acceleration mechanisms are not fully understood. Here we present a few examples of jet fronts/braking regions and associated suprathermal electron acceleration in the Earth's magnetotail, by using Cluster spacecraft data. We discuss the properties of accelerated electrons and electromagnetic fields for both jet front and jet braking regions.