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Multi-step electron acceleration in magnetotail reconnection

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Magnetic reconnection plays a key role for particle acceleration. Important examples in the solar system are flares and planetary substorms. Numerical simulations for the magnetotail show that the reconnection electric field can accelerate ions and electrons to very high energies and this prediction has been verified by in-situ observations. However these studies also indicate that the flux of accelerated particles is rather small compared to the total, raising the question if reconnection itself is indeed efficient as accelerator. The same question has been raised for the solar corona, where the estimated number of particles accelerated by the reconnection field seem not sufficient to explain flare observations (the so-called number problem). Recent models and simulations suggest that acceleration in the magnetotail is rather a multi-step process, where particle are initially accelerated by the reconnection field and further energized by other mechanisms away from the reconnection site. Here we use Cluster multi-point observations for one event to try testing such scenario for electrons. Preliminary results show that the hardest spectra are found when the current sheet is very thin and electric fields are strongest, possibly close to the reconnection site, and that fluxes increase and spectra become softer when the current sheet becomes thicker and has a more dipolar topology, consistent with a two-step scenario.