



Electron energization upon a merger of large magnetic islands

Kentaro Tanaka, Masaki Fujimoto, and Iku Shinohara
ISAS, JAXA, Kanagawa, Japan (tkentaro@stp.isas.jaxa.jp)

We show via two-dimensional full-particle simulations that an anti-X-line facilitating a merger of large magnetic islands produces the most energetic electron component in the system. The strong electron acceleration is because the anti-reconnection is in such a driven manner that the associated electric field is an order of magnitude larger than those available upon normal reconnection. That electron acceleration takes place within the electron inertial scale lengths, meanwhile the whole system becomes turbulent because of multi-island merging. A possible application of the results to the electron acceleration process in solar flares is discussed.