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Anti-reconnection in a large system as the accelerator of the most energetic electrons

Anti-reconnection in a large system as the accelerator of the most energetic electrons

田中 健太郎^{1*}, 藤本 正樹¹, 篠原 育¹

Kentaro Tanaka^{1*}, Masaki Fujimoto¹, Iku Shinohara¹

¹宇宙航空研究開発機構宇宙科学研究本部

¹ISAS/JAXA

We show via two-dimensional full-particle simulations that an anti-X-line facilitating a merger of magnetic islands in a large system produces the most energetic electron component. 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. A possible application of the results to the electron acceleration process in solar flares is discussed.