

Suppression of quick magnetic reconnection triggering by guide field

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Influence of guide field on quick magnetic reconnection triggering (QMRT) is investigated by three-dimensional (3-D) full-particle simulations with the mass ratio of $M_i/M_e = 400$. Spontaneous electron current density enhancement at the current sheet center mediated by the lower-hybrid wave activity at the edges leads to QMRT. With moderate guide-field, this current concentration has to occur within an electron Larmor radius (based on the guide-field) from the current sheet center for QMRT, which attained by field aligned acceleration of electrons and requires smaller initial current sheet thickness than the zero guide-field case.