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## Quick reconnection triggering in bifurcated current sheet 2

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Bifurcated current structures have been observed in the three-dimensional (3-D) fullparticle simulations. When the initial current sheet half thickness is set to be D = 1(normalized in the ion-inertial length) in the absence of the out-of-plane guide field  $B_{0y}$  (normalized in the lobe magnetic field), the current bifurcation results in the quick magnetic reconnection triggering (QMRT). On the other hand, when non-zero guide field is imposed, QMRT becomes quenched for D > 0.42 (0.35) at  $B_{0y} = 0.75$  (1.0). The current bifurcation is also seen in the guide-field cases. Detailed analyses on the bifurcated current structure and the electron velocity distribution function have been made. For  $B_{0y} = 0$ , the electron ExB drift and the anisotropy produce the bifurcated current layer in an-ion scale thick current sheet. On the other hand, off-ExB drift and the field-aligned electron acceleration cause the bifurcated current structure in the quenched QMRT for the guide-field cases.