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Energy Conversion Mechanism for Electron Perpendicular Energy in High Guide-Field Reconnection<sup>1</sup> XUEHAN GUO, The University of Tokyo, RITOKU HORIUCHI, National Institute for Fusion Science, YASUHIRO KAMINOU, FRANK CHENG, YASUSHI ONO, The University of Tokyo — The energy conversion mechanism for electron perpendicular energy, both the thermal and the kinetic energy, is investigated by means of two-dimensional, full-particle simulations in an open system. It is shown that electron perpendicular heating is mainly due to the breaking of magnetic moment conservation in separatrix region because the charge separation generates intense variation of electric field within the electron Larmor radius. Meanwhile, electron perpendicular acceleration takes place manly due to the polarization drift term as well as the curvature drift term of  $E \cdot u_{\perp}$  in the downstream near the X-point. The enhanced electric field due to the charge separation drift term on the dissipation of magnetic energy within the ion inertia length in the downstream.

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