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**Electron Heating Characteristics of Magnetic Reconnection in UTST Merging Tokamak Experiment** XUEHAN GUO, TAKAMICHI SUGAWARA, MICHIAKI INOMOTO, YASUSHI ONO, The University of Tokyo, UTST TEAM — Localized electron heating from 10eV to 30eV was documented around the X-point during strong guide field (typically $B_t \sim 15B_p$) magnetic reconnection in the UTST tokamak merging experiment. We developed a novel two-dimensional Thomson scattering measurement system by sliding radially the whole 1D system that can measure an axial profile of electron temperature and density in a single discharge. The high electron temperature area was found to have a round shape with radius of 2cm, in sharp contrast with high current density area. This scale length 2cm is close to the orbit amplitude of an ion meandering motion 1.5-2cm but 3 times longer than the ion gyroradius 0.6cm.The electron heating power is about 12MW/m$^3$ which is an order of magnitude larger than heating power calculated from the Splitzer resistivity. The increment in electron thermal energy is about 2.2 J, which is about 15% of the dissipated magnetic energy of 14 J measured by 2D magnetic probe array. This conversion ratio in the strong guide field magnetic reconnection is higher than that in the weak guide field (typically $B_t \sim 5B_p$) experiment in MAST and TS-3 devices, suggesting that the electrons are accelerated toroidally toroidally by reconnection electric field and thermalized around X-point.

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