

Abstract Submitted
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Spectroscopic Measurement of Energy Conversion in Magnetic Reconnection during Spherical Tokamak Merging Experiment SHUJI KAMIO, KOICHIRO TAKEMURA, KOTARO YAMASAKI, QINGHONG CAO, HIROTOMO ITAGAKI, TAKENORI WATANABE, TAKUMA YAMADA, MICHIAKI INOMOTO, YUICHI TAKASE, ONO YASUSHI, The University of Tokyo — The University of Tokyo Spherical Tokamak (UTST) is a spherical tokamak device with unique feature of plasma merging (magnetic reconnection), which is utilized as a high-power plasma heating for non-inductive startup of high-beta plasma. During the plasma merging in the UTST device, intense emission of He II line (468.58nm) and impurity carbon lines were observed only in the vicinity of the X-point. This localized emission indicates the generation of energetic electrons inside the current sheet region, possibly due to the electron acceleration by the strong toroidal electric field induced by magnetic reconnection. This work was supported by JSPS KAKENHI (22246119 and 22686085), MEXT, Japan.

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