

Abstract Submitted
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Floating Potential Measurement of Magnetic Reconnection Region with High Guide Field in the UTST Merging Experiment KOTARO YAMASAKI, the University of Tokyo — Electrostatic probe measurements of electron temperature [1] revealed a clear quadra-pole structure of floating potential profile around the X-point in the UTST merging/ reconnection experiment with high toroidal (guide) magnetic field. In the initial slow phase of reconnection, the 2D profile of floating potential has a long center electron layer with long outer ion layer but it is transformed into the quadra-pole structure when the sheet compression triggers fast reconnection. This result agrees well with the PIC simulation results by Horiuchi etc [2]. We confirmed that the polarity of the quadrupole structure completely reversed under reversed polarity of the guide field. This fact indicates that the quadrapole floating potential structure is caused by the guide field. Also, the IDS probe measurement documented a high speed reconnection outflow around 27km/s, almost equal to poloidal Alfvén speed. We will discuss the relationship between the potential structure, the outflow and ion heating around the X-point.

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