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Experimental and numerical studies of dynamic divertor with plasmoid SHIZUO INOUE, YASUSHI ONO, YASUHIRO KAMINOU, University of Tokyo, RITOKU HORIUCHI, National Institute for Fusion Science — Novel dynamic divertor operation with controlling plasmoid motion has been studied in TS-4 ST experiment and in MHD /PIC simulation. In the TS-4, the plasmoid ejection from the core ST plasmas, which is a standard operation of dynamic divertor, was demonstrated for the first time.¹ Using this experimental data as background condition, the confinement of the heat flux from the core plasma in the plasmoid is indicated through orbit calculation. In addition, physical pictures of the heat flux transport from the SOL region to the plasmoid will be studied in detail by 2-1/2 dimensional collisionless particle simulations in the rectangular coordinate.² Since the strong guide field exists the region where the plasmoid is formed and transported, field-aligned motion is important for understanding the heat flux transport from the SOL region to the plasmoid both for ions and electrons.

¹S. Inoue et al., in Proceedings of the 24th IAEA Fusion Energy Conference, PD/P8-17 (IAEA, San Diego, 2012).

²H. Ohtani and R. Horiuchi, Plasma Fusion Res, 4, 024 (2009).

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