

Abstract Submitted
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Dynamic Divertor Concept by Plasmoid Ejection in TS-4 Spherical Tokamak Experiment YASUSHI ONO, SHIZUO INOUE, TAKENORI WATANABE, SHINGO ITO, TORU II, SYUJI KAMIO, TAKUMA YAMADA, MICHIAKI INOMOTO, University of Tokyo, TS AND UTST TEAM — We proposed a new type of dynamic divertor by use of intermittent plasmoid ejection from the main plasma to divertor coil. Our 2-D MHD simulation demonstrated for the first time how the plasmas and coil conditions can control plasmoid dynamics for this divertor action. This dynamic divertor has four essential steps. First, current drive and heating cause the main detached plasma to expand to the divertor region, causing a plasmoid formation. Second, the expanding core plasma finally pinches off the small plasmoid. Next, the plasmoid isolated from the main plasma is cooled down by Argon gas puffing and finally is connected with the divertor plate. The series of divertor actions are expected to reduce the heat road to divertor plate significantly, suggesting a new type divertor useful for heavy heat road from type I Edge-Localized Mode(ELM). We will present its simulation result and the corresponding experiments of plasmoid ejection in TS-2 and TS-4 merging experiments.

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