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Observation of change in detachment phenomenon due to divertor structure difference in KSTAR geometry. OOKJOO RA, KYU BEEN KWON, MIN SUP HUR¹, Ulsan Natl Inst of Sci Tech — The divertor detachment is one promising solution to reduce the heat flux on the target. Usually the detachment is obtained by increasing the upstream density but it results in deteriorated core confinement. Hence it is necessary to devise a mechanism that can onset the detachment at low upstream densities. From numerous previous studies, it has been found that the magnetic configuration and PFCs material affect the detachment phenomenon. However researches on the effect of divertor shape has been rarely reported. In order to investigate the effect of divertor shape on detachment, we analyzed the effects of SAS-like shape on the KSTAR environment using SOLPS-ITER package. In the SAS-like divertor, highly concentrated deuterium was observed in the SOL region near the separatrix. The increased volumetric power loss by the deuterium near the separatrix lead to significantly lowered heat flux on the target and the detachment onset at considerably low upstream density. Interestingly such reduction of heat load could be obtained with a very shallow SAS compared to the original DIII-D. We discovered that the heat reduction was more sensitive to the slot angle than the depth.

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