Observation of change in detachment phenomenon due to diver-
tor 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 detach-
ment 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 ana-
alyzed 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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