

Abstract Submitted
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Effect of 3-D fields on the divertor detachment in NSTX J-W. AHN, R. MAINGI, A.G. MCLEAN, J.M. CANIK, J.D. LORE, T.K. GRAY, ORNL, A. DIALLO, M. JAWORSKI, B. LEBLANC, PPPL, S. KUBOTA, UCLA, V.A. SOUKHANOVSKII, LLNL, K. TRITZ, JHU, A. LOARTE, ITER — Divertor plasma detachment was induced by divertor gas puffing in NSTX and is accompanied by a drop of pedestal electron temperature (T_e) and density (n_e), therefore pressure (p_e), and this drop becomes stronger, particularly in T_e , with increasing gas puffing rate. The applied 3-D fields were observed to reattach the detached plasma for lower gas puffing rates, but the divertor plasma remained detached with higher puffing rates even with the 3-D field application. The pedestal T_e profile for the detached plasma at lower puff rates shows a clear increase during the 3-D field application while the pedestal density increase is not obvious. The 3-D field does not affect the pedestal profiles of the detached plasma at higher puff rates. The Ultra Soft X-ray (USXR) data indicates that the emission intensity first changes in the edge region, both by the detachment and 3-D field application, and then propagates into the pedestal region. The change of the transport processes both in the edge and core region across the detachment and the 3-D field application will be also investigated with diagnostic measurements available. This work was supported by the US Department of Energy, contract # DE-AC05-000R22725, DE-AC02-09CH11466, DE-AC52-07NA27344, and DE-AC02-09CH11466.

Joon-Wook Ahn
Oak Ridge National Laboratory

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