## Abstract Submitted for the DPP05 Meeting of The American Physical Society

Effect of the Surface Temperature on Net Carbon Deposition and Deuterium Co-deposition in DIII-D Divertor<sup>1</sup> D.L. RUDAKOV, J.A. BOEDO, R.A. MOYER, University of California-San Diego, R. BASTASZ, W.R. WAMPLER, J.G. WATKINS, SNL, J. BROOKS, ANL, N.H. BROOKS, W.P. WEST, C.P.C. WONG, GA, W. JACOB, K. KRIEGER, IPP Garching, A. LIT-NOVSKY, V. PHILIPPS, IPP Juelich, A.G. MCLEAN, P.C. STANGEBY, U. Toronto — We report a strong effect of a moderately elevated surface temperature on net C deposition and D co-deposition in DIII-D divertor under detached conditions. A DiMES sample with a gap 2 mm wide and 15 mm deep was exposed to L-mode plasmas first at room temperature then at 200°C. At the elevated temperature deuterium co-deposition in the gap was reduced an order of magnitude and net carbon erosion at a rate of 3 nm/s was measured at the plasma-facing surface of the sample. In another experiment visible deposits were produced on molybdenum mirrors recessed 2 cm under the divertor floor and exposed to ELMing H-mode plasmas for 25 seconds at room temperature. In contrast, virtually no deposits were observed on mirrors exposed to similar plasmas for 70 seconds at elevated temperatures, between  $140^{\circ}$  and  $80^{\circ}$ C.

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