

Abstract Submitted
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Reduced Net Erosion of High-Z PFC Materials in DIII-D Divertor¹ D.L. RUDAKOV, UCSD, P.C. STANGEBY, J.D. ELDER, UTIAS, W.R. WAMPLER, D.A. BUCHENAUER, J.G. WATKINS, SNL, J.N. BROOKS, A. HASANEIN, T. SIZYUK, Purdue, A.R. BRIESEMEISTER, ORNL, A.G. MCLEAN, LLNL, C.P. CHROBAK, H.Y. GUO, A.W. LEONARD, C.P.C. WONG, GA — DiMES samples featuring 1 cm and 1 mm diameter W films deposited on a Si substrate were exposed in DIII-D near the attached outer strike point of LSN L-mode discharges. The measured net and gross erosion rates of W, determined from post-mortem ion beam analysis (IBA) of 1 cm and 1 mm samples, were 0.14 and 0.48 nm/s, respectively, giving net/gross erosion ratio of 0.29. REDEP/WBC modeling of this experiment yielded a very close ratio of 0.33. Projection of the modeling results to ITER shows very low net erosion of W. In another experiment Mo-coated samples were exposed with $^{13}\text{CH}_4$ gas injected ~ 2 cm upstream of DiMES. Reduction of Mo erosion was evidenced *in-situ* by the suppression of MoI line radiation. Post-mortem IBA showed that the net erosion of Mo was below the measurement resolution of 0.5 nm, corresponding to a rate of ≤ 0.07 nm/s. Compared to the previously measured erosion rates, this constitutes a reduction of more than 10X.

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Tony Leonard
General Atomics

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