

Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Impurity transport measurements in the PISCES-A linear plasma device¹ B.F. HUDSON, R.P. DOERNER, E.M. HOLLMANN, D. NISHIJIMA, University of California - San Diego — The parallel transport, in terms of diffusion and advection by entrainment in parallel plasma flow, of impurities relevant to proposed ITER divertor materials (W, C) are studied in a linear He plasma. Introduction of the impurities in controlled amounts is accomplished by blow-off of thin films using a (1064nm, 75 mJ) pulsed Nd:Yag laser. Neutral and ion excited state emission are measured with an optically filtered PMT array. Emission profiles are compared to a 1.5 D advection plus diffusion numerical model to obtain a parallel flow speed and parallel and perpendicular diffusion coefficients. This work also expands on earlier results [1] by including multiple downstream measurement locations to quantify impurity acceleration and the controlled spot size of impurity blow-off.

[1] E. M. Hollmann et. al., J. Nucl. Mater (2010) in press

¹This work supported by USDOE grant DE-FG02-07ER54912.

Ben Hudson
University of California - San Diego

Date submitted: 13 Jul 2011

Electronic form version 1.4