

Abstract Submitted  
for the DPP05 Meeting of  
The American Physical Society

**Plasma Interactions with Mixed Beryllium-Carbon Surfaces<sup>1</sup>** R. DOERNER, M. BALDWIN, D. NISHIJIMA, R. SERAYDARIAN, Center for Energy Research, UCSD, J. ROTH, K. SCHMID, A. WILTNER, Max-Planck Institut fuer Plasmaphysik, Garching — Mixed material investigations of the Be-C system, using the PISCES-B facility, are described. A beryllium atom beam is used to ‘seed’ beryllium impurities into deuterium plasma, simulating ITER first wall erosion and subsequent flow in the SOL to the divertor. The interaction of this beryllium containing plasma with C substrates is investigated. Small ( $\sim 0.1\%$ ) Be concentrations result in Be-rich surface layers formation on plasma-exposed samples and lead to suppression of both chemical erosion and physical sputtering of the carbon substrate. Eroded material codeposited away from the plasma interaction region is composed almost entirely of Be and D. The level of codeposition of Be and D at room temperature is on the same order as that expected from codeposition of C with D, however the retained D is released thermally from Be codeposits at much lower temperature when compared to C codeposits. Also the amount of D retained in Be codeposits formed at higher temperature is much smaller than the amount of D in similar C codeposits.

<sup>1</sup>Work performed as part of US-EU Collaboration on Mixed-Materials for ITER

Russell Doerner  
UCSD

Date submitted: 21 Jul 2005

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