Abstract Submitted for the DPP07 Meeting of The American Physical Society

Codeposition of deuterium with the ITER mix of materials¹ RUSS DOERNER, MATT BALDWIN, GREGORY DE TEMMERMAN, DAISUKE NISHIJIMA, Center For Energy Research, CH LINSMEIER, JOCHIM ROTH, KLAUS SCHMID, Max Planck Institut fur Plasmaphysik, Garching — Tritium accumulation within the ITER vacuum vessel is expected to be dominated by codeposition. Since ITER will employ a unique combination of plasma-facing materials (Be, C and W), the codeposition properties of each of the materials, and combinations of the materials, must be evaluated. The database on codeposition is reviewed and new measurements from PISCES-B are used to understand apparent discrepancies found in the literature. The variables determining the deuterium content in the layers appear to be the surface temperature during the codeposition, the morphology of the layer and the energy of particles incident on the codepositing layers. In addition to retention in codeposited layers, the ease of removal of deuterium from codeposits will determine their importance for ITER. The release of deuterium during vacuum annealing will be compared for each of the three proposed ITER materials, as well as from mixtures of the materials.

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George Tynan UCSD Center For Energy Research

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