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Self-consistent edge-wall simulations with WALLPSI in FACETS A. PIGAROV, S. KRASHENINNIKOV, UCSD, J. CARY, A. HAKIM, S. KRUGER, M. MIAH, A. PLETZER, S. SHASHARINA, Tech-X, R. COHEN, T. ROGNLIEN, T. EPPERLY, LLNL — The Framework Architecture for Core-Edge Transport Simulations (FACETS) is a SciDAC project for self-consistent simulations of core-edgewall transport in tokamaks using leadership class computers [1]. For analysis of transient peak power load handling, PFC erosion/deposition and lifetime, plasma impurity contamination, and hydrogen retention issues in FACETS, we developed the 1D continuum code WALLPSI [2]. WALLPSI simulates highly non-linear transport, release and trapping of hydrogen species in wall, and calculates the wall temperature and emerging impurity fluxes. We present progress on the development of an interface to allow WALLPSI to be invoked from within the multiple-component FACETS infrastructure. Each wall segment is modeled by WALLPSI instance which are all run concurrently on separate CPUs. FACETS provides the mechanism for coupling the wall to plasma transport code UEDGE. The results are presented showing non-linear variation of hydrogen species wall inventory in response to incident plasma fluxes and abrupt changes in edge plasma parameters caused by wall switching from net pumping regimes to net outgassing ones using an initial slab edge plasma setup. [1] J.Cary et al J.Physics CS 125(2008)012040 [2] A.Pigarov et al JNM 390(2009)192

> A.Yu. Pigarov UCSD

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