Abstract Submitted
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SOLPS modeling of inter/intra-ELM W transport DIII-D[1] A.C. SONTAG, E.A. UNTERBERG, J.M. CANIK, L.W. OWEN, ORNL, T. ABRAMS, ORAU, J. WATKINS, SNL — The concentration of impurities in the core plasma is determined by the impurity source rate, impurity transport in the SOL and core impurity transport. In order to study this impurity transport chain, tungsten coated molybdenum inserts have been installed in the DIII-D divertor carbon tiles to form two separate rings, one on the floor and one on the shelf above the pump duct. While both the tungsten source rate at the sputtering location and the tungsten concentration in the core plasma can be measured, there is no reliable method for predicting the core concentration given the source rate. SOLPS has been used to perform interpretive modeling of tungsten transport in the SOL of DIII-D and determine the relative importance of the friction force and the ion temperature gradient force on impurity transport. An outer midplane deposition probe provides additional data on the SOL tungsten density. ELM averaged pedestal profiles covering the last 20% of the ELM cycle are used to determine the inter-ELM transport, while individual pedestal profiles measured during the ELM cycle are used to examine intra-ELM tungsten transport. ELM resolved source flux measurements are used to model the intra-ELM transport.

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