

Abstract Submitted
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Transport of Aluminum impurities in Helium Plasma¹ RIMA HAJJAR, ERIC HOLLMANN, SERGEI KRASHENINNIKOV, RUSSELL DOERNER, UCSD — Impurity radiation losses at the edge of fusion devices are crucial for establishing detached divertor regimes in ITER and future tokamak reactors, despite the problem they cause in reducing plasma efficiency. Complex parallel and cross-field impurity transport suggest a rather fluid description when treating edge dynamics, leading somehow to marginal simulation results of the impurity transport problem. A kinetic description accounting for impurity/plasma collisions should be used instead, generating more details on the collision dynamics, while the relatively high mass difference between colliding particles leads to major simplifications in the physics of the problem. Modeling of Aluminum injection and entrainment into steady-state Helium plasma is presented. Multiple ionization and radial losses are included and numerical results are then compared to experimental data obtained from PISCES machine.

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