

Abstract Submitted
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Theoretical explanations of impurity removal in I-mode and poloidal pedestal asymmetries¹ SILVIA ESPINOSA, PETER J CATTO, MIT Plasma Science and Fusion Center — We have developed the first self-consistent theoretical model retaining the impurity diamagnetic flow and the 2D features it implies due to its associated non-negligible radial flow. It successfully explains the experimental impurity density and temperature, and radial electric field, in-out asymmetries neoclassically. Moreover, it provides a means of calculating the neoclassical impurity radial flux from currently available measurements, providing insight on optimal tokamak operation to prevent impurity accumulation. In particular, it predicts outward neoclassical impurity flux, and therefore inward fueling, occurs for I-mode operation in C-Mod.

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