

Abstract Submitted
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Secondary electron emission and the bifurcation of the heat flux to the targets in fusion plasmas¹ WONJAE LEE, SERGEI KRASHENINNIKOV, UCSD — The presence of secondary electron emission (SEE) from plasma facing components in fusion devices can result in a strong localization of the heat flux from plasma to the wall and subsequent wall erosion. Usually, the impact of the SEE is considered assuming the Maxwellian distribution of the electrons coming to the surface. As a result, the SEE coefficient only depends on electron temperature and not on the wall potential. Therefore, the solution for the wall potential found from the ambipolarity of plasma flow to the wall (including SEE) is unique. However, the tail of electron distribution function in the SOL of fusion devices can be far from Maxwellian due to preferential loss of fast electrons. Consequently, the SEE coefficient will depend on the wall potential and multiple solutions of the ambipolarity equation can be possible corresponding to different regimes of plasma flow to the wall: with and without SEE effects.

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