

Abstract Submitted  
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**Particle-in-Cell Simulations of the Ion Energy-Angle Distributions at ICRH Antennas in RF sheaths**<sup>1</sup> DAVIDE CURRELI, University of Illinois at Urbana-Champaign, RF-SCIDAC TEAM TEAM — Magnetic fusion devices operating with ICRH (Ion Cyclotron Resonance Heating) antennas suffer from increased erosion at the material surfaces exposed to the plasma. The radio-frequency rectified sheath formed in front of the surfaces accelerates the ions to energies which can easily exceed the sputtering threshold, with consequent enhanced sputtering and impurity emission during RF operations. In order to characterize the ion energy-angle distribution (IEAD) of the particles impacting on the surface, we performed a sequence of Particle-in-Cell simulations using the hPIC code developed at Illinois. The simulations highlight the main features of the kinetic distributions of the ions impacting on the ICRH surfaces. The Ion Energy-Angle Distributions obtained from hPIC were used for a characterization of the sputtering behavior as a function of the RF cycle and for an estimate of the enhanced gross erosion due to RF-sheaths.

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