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**Kinetic Characterization using hybrid Particle-in-Cells of the Impurity Release and Wall Erosion of Metal Samples Exposed to a DIII-D Divertor Plasma** RINAT KHAZIEV, DAVIDE CURRELI, University of Illinois at Urbana Champaign — We present a numerical characterization of the wall erosion and impurity release of high-Z metal samples (Mo and W) exposed to a DIII-D plasma using coupled Particle-in-Cell and Binary Collision Approximation codes. The hPIC code was used together with the BCA code TRIDYN to provide a self-consistent treatment of the ion dynamics inside a magnetized plasma sheath. The simulations have been run for the typical plasma conditions encountered at the divertor of DIII-D, $n_e \approx 10^{19}\mathrm{m}^{-3}$ $T_e \approx 2 - 20$ eV, magnetic angle 1.5 deg. The calculated ion energy-angle distributions (IEAD) at the material wall are fed as an input to TRIDYN, to determine the flux and the distribution of the sputtered material. We present the gross erosion rate and an estimate of the net erosion of the divertor material as function of the relevant plasma parameters, and we highlight the kinetic effects of the erosion process.

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