

KINETIC TRAJECTORY SIMULATION METHOD FOR INTERACTION OF MAGNETIZED PLASMA HAVING TWO SPECIES OF POSITIVE IONS WITH TUNGSTEN SURFACE

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The kinetic trajectory simulation method has been employed to study the plasma-wall interaction in the magnetized plasma with two species of positive ions exposed to the tungsten (W)-surface. The multi-component plasma interacts with W-surface through non-neutral plasma sheath formed near the Plasma Facing Materials (PFMs). It is found that the ion velocity distribution functions have a cut-off Maxwellian distribution with almost equal magnitudes of cut-off and Maxwellian maximum velocities. The presheath electron temperature can significantly affect the wall potential and ion flow, whose explicit effect can be seen on the ion fluxes and current density at the wall. In addition, the reflected concentration of both the ions decreases so that absorption rate increases; however, the lighter ion absorption is about 7% higher in magnitude than that of heavier ions for the W-surface.

Country or International Organization

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