

Effect of Irradiation's Angle of Incidence on The Sputtering Energy Threshold of Beryllium Metal of the ITER First Wall

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Two simulation programs SDTrimSP and RDS-BASIC were used to study the variation of sputtering energy threshold values (E_{th}) of beryllium metal irradiated by Helium, Tritium, and Deuterium ions when bombarded at various angles of incidence. The study aims to mimic the actual condition that the beryllium first wall of the International Thermonuclear Experimental Reactor (ITER) is subjected to in regular operation conditions. In all of the studied irradiation systems, we found that increasing the angle of incidence causes E_{th} values to decrease gradually until they reach their minimum values at an angle range between 40° and 70°. The E_{th} minimum values were found to be (10% to 35%) lower than their normal incidence value $E_{th}(0^\circ)$. These results were discussed theoretically and compared with one suggested theoretical model.

Speaker Bio

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