

Tritium distribution of tungsten exposed with low energy, high flux D plasma

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Tungsten is one of the candidate materials for plasma facing components for fusion reactor. Due to the limitation of tritium inventory in vacuum vessel and the prevention of impurity ingress into plasma, plasma surface interaction of tungsten is important issue. It is well known that plasma exposure to tungsten makes some kinds of blister on the surface and increases the hydrogen inventory. To understand these plasma surface interactions, tritium distribution of tungsten exposed with low energy (38eV), high flux D plasma was examined with BIXS and tritium micro autoradiography. D plasma exposures were carried out at around 495 and 595K of specimen. After that, specimen was exposed with gaseous tritium diluted with deuterium at 473K in 3 hours. Amount of tritium in surface layer was measured with BIXS and tritium distribution of surface was observed with micro autoradiography. The amount of tritium in surface layer was different of each exposure condition and tungsten exposed at 495K shows highest amount of tritium. This result quite agrees with D inventory examination with thermal desorption spectrometer. The results of micro autoradiography will be shown in the presentation.