

TUNGSTEN FUZZ FORMATION ON THE NITRIDED TUNGSTEN SURFACE

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The research goal is to analyze the formation of tungsten fuzz on the initial and nitrided surfaces of tungsten. The experiments with a helium plasma for fuzz formation on the tungsten surface were carried out on an imitation stand with a plasma-beam installation.

The formation of fuzz occurred at the following parameters: the diameter of the plasma flow in front of the target up to 30 mm; the intensity of the magnetic field produced on the axis of the plasma-beam discharge chamber is 0.1 T; the plasma density in the beam is up to 10^{18} m^{-3} ; the maximum current in the plasma is 1 A; the electron temperature range of the plasma is 5÷15 eV.

A series of irradiation experiments were realized on the initial tungsten surface with helium plasma in the plasma-beam discharge regime. All stages of the experiments contained studies of the surface of tungsten using optical and scanning electron microscopies, elemental EDS and X-ray analysis.

Experiments have been carried out on irradiation of tungsten with a helium plasma with an initial and a nitrided surfaces. The results of the studies showed that tungsten fuzz is formed on the nitrided surface of tungsten, as well as on the initial surface. On the initial surface of tungsten, the structure of the fuzz is more uniform than on nitrided samples.