

SURFACE TOPOGRAPHY AND ELEMENTAL COMPOSITION OF CRATERS ON THE SURFACE OF TANTALUM

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The structure of the crater formed on the surface of tantalum after the impact of high power pulsed ion beam (HPIB) (carbon ions C^{n+} , accelerating voltage 250 kV, pulse energy density 2.6-3 J/cm², current density 130-150 A/cm²) was studied by scanning electron microscopy.

After exposure to three pulses, cracks form on the surface along the direction of deformation of tantalum. Also round-shaped microcraters with a diameter of 2-5 microns form on the surface. The relief of the modified surface is smoothed out. After exposure to 10 pulses, the size of craters increases to a diameter of 20-30 microns.

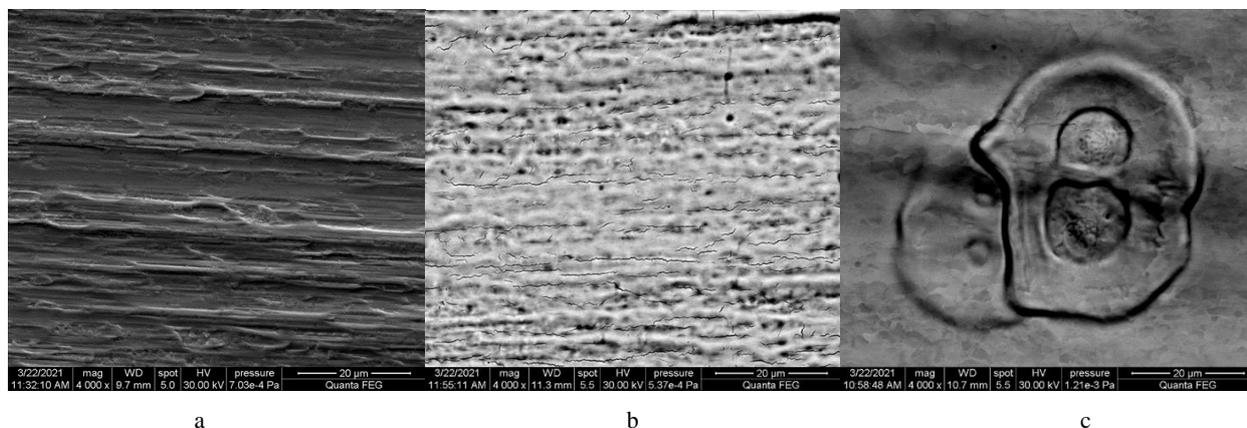


Fig.1. Top-view topography of the surface of samples of tantalum before (a) and after 3 (b) and 10 (c) pulses of HPIB processing at $F=2.6 - 3 \text{ J/cm}^2$.