

Investigation of the impact of pulsed plasma on nanostructured YBCO materials

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Nanostructured YBCO ceramics with a given density and optimally saturated with oxygen were fabricated. The effect of plasma treatment for ~60 s on the structure and properties of the surface of a YBCO target located at a distance of 20 mm from the plasma torch nozzle exit has been studied. The heat fluxes transferred by the plasma are determined for various values of the current strength, gas flow rate, and distance from the nozzle exit. The results of studies of the structure and properties of the sample before and after exposure are presented. It has been found that the onset of the transition to the superconducting state ($T_{c, b}$) for the samples, before and after exposure to the plasma, remains unchanged and amounts to ~91 K.

Keywords: nitrogen oxides, diffuse discharge, gas dynamics, plasma chemistry.

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