

Design of titania nanotube structures by focused laser beam direct writing

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Abstract

In this work, we report on electrochemical fabrication of titania films consisting of nanotubes (NTs) and their treatment by focused laser beam. The results of sample characterization by optical and scanning electron microscopy, cathodoluminescence imaging, and Raman scattering spectroscopy are compared to those inherent to specimens subjected to thermal treatment in a furnace. The obtained data demonstrate possibilities for controlling crystallographic structure of TiO₂ NTs by focused laser beam direct writing. These findings open new prospects for the design and fabrication of spatial architectures based on titania nanotubes.

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