

Structural properties of Ni/Cu dendrites under irradiation

Structure and morphology is the main criteria in the development of functional nanostructures with controlled properties for practical use. In turn, metallic nanostructured dendrites are of great interest in various applications as catalysts due to the large surface area and low density, amplifiers of electrical signals, the basis for Surface enhanced Raman spectroscopy (SERS) technology, and others. At the same time, the uniqueness of physical-chemical properties of nanostructured dendrites is due to such factors as chemical and elemental composition, surface morphology, and resistance to various types of influences.

This work is aimed at studying the effect of irradiation with alpha particles on structural and conductive properties of Ni/Cu dendrites. Low-energy ions of He are selected to simulate the accumulation of transmutant helium, leading to swelling and defect formation in the structure, which can lead to a decrease in the operability of electronic devices. In the course of the study, doses were determined in which defects formed during irradiation lead to a decrease in operational characteristics of nanostructures.

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