

Effects of radiation generation during the interaction of high-energy electron beams with ordered nanostructures

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The effects of generation of neutron, microwave and optical radiation during the interaction of a high-energy electron beam from an accelerator with various nanostructured targets of the “photonic crystal” type are studied. It is shown that, in contrast to solid-state unstructured targets, the interaction of an electron beam with three-dimensional photonic crystals and nanostructured powders generates optical and microwave radiation at several narrow frequency bands coinciding with the characteristic dimensions of the photonic crystal structure.