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The real position of businesses in the area of nanotechnologies is briefly considered and some results on the development nanomaterials and nanotechnologies in the scientific establishments of Russia are stated.

The questions of creation of infra-red detectors on epitaxial heterostructures $Ge_{\chi}Si_{1-\chi}/Si$ are considered The analysis of formulas for calculation of threshold characteristics GeSi/Si heterojunction detectors with the internal photoemission in a spectral range 8-12 micron is carried out.

The new technological method of the effective light source producing is represented at this article. The field emission cathode is based on the constructional graphite. The obtained results confirm the big potential of such technology. It must be applied to create different types of the cathodoluminescent devices including the flat panel displays.

Results of x-ray analysis $Ce_{1-x}-Bi_x-O_y$ powders, where x=0,3-0,55 are presented. The powders were produced by pyrolisis

at 500 $^{\circ}$ C of mixture of cerium and bismuth carboxylates, and annealed at 700 $^{\circ}$ C, 800 $^{\circ}$ C and 1000 $^{\circ}$ C. Powders consists mainly of cubic phase, formed either at high, or at low temperatures, that differs by lattice parameter. Crystal size of cubic phase is 10 nm at 700 $^{\circ}$ C and 40 nm and 1000 $^{\circ}$ C.

The classification of the main modern methods of field emission cathodes producing from two big classes of carbon material are represented at this article. The first class of carbon material is the materials of the industrial production. The second type of the carbon materials is the carbon nanostructured produced directly on the surface. Furthermore the some features of the cathodes producing methods are described at the article.

Classification of the types unmanned underwater vehicles (UUV) presented. The most important trends in research and development AUV surveyed. Our review of micro-AUV capabilities confirmed the potential of the technology in some important areas.

The design of the multidot block of sensitive elements of pressure is considered, results of research of temperature characteristics of the block are shown, comparison of measuring characteristics with its analogues is given.

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