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Review of the monograph

"Photoconverters with AlGaAs/GaAs Heterojunction on Textured GaAs Substrates (Physico-technological aspects)" (Fan Publishers, Tashkent, 2004)

by A.A. Akopyan, O.Yu. Borkovskaya, N.L. Dmitruk, A.V. Karimov, R.V. Konakova, V.V. Milenin, A.V. Sachenko, M.N. Tursunov, D.M. Yodgorova

The monograph deals with solving the problems of semiconductor (gallium arsenide, AlGaAs and InGaAs solid solutions) materials science for efficient conversion of solar energy. Now there is a great number of works in this area. This monograph differs from them by a nontraditional approach to solving the problem of formation of GaAs and Al(In)GaAs epitaxial layers on a specially made textured growth surface of the substrate. The authors managed to demonstrate that, whatever the applied technique of epitaxy on textured GaAs substrate, structurally perfect epitaxial films with required parameters are formed on textured GaAs surfaces, and these films ensure efficient conversion of solar energy.

The technological procedures used for texturing GaAs surface and formation of epitaxial layers on it, as well as of heat- and radiation-tolerant ohmic contacts to them, were applied when performing a number of regional research projects, both in Ukraine and Uzbekistan, as well as a project of the Science and Technology Center in Ukraine.

The results obtained by authors' research team promoted formation of novel knowledge in technology of semiconductor materials and devices. They also made it possible to develop new ideas concerning atomic diffusion processes in textured epitaxial layers that occur in the course of fabrication of *p-n* homo(hetero)junctions and radiation-enhanced diffusion, as well as obtain new data on the photoconversion processes in heterostructures with microrelief interfaces and physical mechanisms for photocurrent formation in them. Thereupon the above monograph is worth of notice; it may be of use for those engaged in development of novel semiconductor technologies, as well as for researchers and specialists dealing with optics of semiconductors.

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