

Photo- and nanoelectronics based on two-dimensional 2D-materials (a review)

(Part III. Photosensors based on graphene, graphene-like
and related monoatomic 2D nanomaterials)

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The mechanisms of photosignals formation, the architecture and main parameters of photosensors are described for monoatomic 2D-materials of elements of groups IIIa, IVa, Va and VIa of the periodic table, such as graphene and graphene-like materials, silicene, germanene, black phosphorus, black phosphorus-arsenic solid solutions, antimonene, bismuthene, tellurene, borophene and heterostructures containing 2D-materials, including together with other low-dimensional materials, as well as photosensors using plasmonic resonators.

Keywords: 2D nanostructure, graphene, silicene, black phosphorus, phosphorene, antimonene, bismuthene, tellurene, borophene, fluorographene, van der Waals heterostructures, heterostructure, plasmonic resonators.

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