EDUCATION AND RESEARCH ACTIVITY IN THE DEPARTMENT OF MICRO- AND NANOELECTRONICS OF BELARUSIAN STATE UNIVERSITY OF INFORMATICS AND RADIOELECTRONICS

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The review indicates bachelor, master and PhD programs and main directions of current research activity in the Department of Micro- and Nanoelectronics of Belarusian State University of Informatics and Radioelectronics.

The researches being performed are focused onto nanostructured materials and technologies of their fabrication. Fundamental electronic, optical and magnetic properties of two-dimensional crystals of transition metal dichalcogenides (MoS_2, $MoSe_2$, $MoTe_2$, WS_2, WSe_2, $MoTe_2$) and their based heterostructures are theoretically simulated within ab initio approaches for applications in nanoelectronics and sensorics. Charge carrier transport mediated by spin effects is theoretically predicted and analyzed in new nanostructures for spintronics. Sol-gel technique and electrochemical anodization of metals are employed to fabricate porous materials: semiconducting oxides (TiO_2, ZnO), insulators (Al_2O_3, WO_x, Ta_2O_5) and graphitic C_3N_4. These are tested for protective coatings, photocatalytic purification of water, protective optical coatings.