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Enhancement in Conductivity and Photoresponse of Ga Doped ZnO Nanofibers

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Nanofibers ZnO and ZnO:Ga with a diameter of 100-250 nm were obtained by electrospinning. Introduction of Ga impurity at a concentration of 1 at. % leads to a significant increase in the conductivity of ZnO nanofibers. It is found that the temperature dependences of the conductivity of ZnO and ZnO:Ga films consist of two activation regions with different activation energies. Under the influence of UV radiation on the samples there is a long-term increase and decrease in conductivity associated with the processes of adsorption and desorption of oxygen molecules. It is shown that the Ga-doped ZnO sample has greater photoconductivity and photoresponse to UV radiation compared to pure ZnO.