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# Distribution of electronic states in amorphous Zn-P thin films on the basis of optical measurements

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Keywords

amorphous semiconductors, thin films, absorption coefficient, model of electronic structure

Abstract

Transmission and fundamental reflectivity studies, completed on amorphous Zn-P thin films, allowed us to obtain parameters describing the fundamental absorption edge, *i.e.*, the optical pseudogap $E_G$, Urbach energy $E_U$ and exponential edge parameter $E_T$. All these data, together with the results of earlier transport measurements, have been utilized in developing simple models of electronic structure (distribution of electronic states) for amorphous Zn-P thin films of two compositions, *i.e.*, $Zn_{57}P_{43}$ (near stoichiometry of $Zn_3P_2$) and $Zn_{32}P_{68}$ (near stoichiometry of $ZnP_2$).