

Effects of Compositional Disorder on Photoluminescence in Alloy Semiconductors

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Abstract

We focus on the combination of material parameters responsible for the compositional disorder in alloy semiconductors and show the agreement of theoretical predictions with the recent experimental observations in lead-tin perovskites and in ternary transition-metal dichalcogenide monolayers.

A comparison between the experimental data and the results obtained by Monte Carlo computer simulations provides information on the energy scale of the disorder potential and on the shape of the density of localized states created by disorder.