

SPECTROSCOPY OF IMPURITY STATES IN Cu–Mn ALLOYS

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S u m m a r y

The indices of refraction n and absorption χ of disordered Cu–Mn alloys with manganese concentrations of 2, 5, 10, 17.5, 25, 37.5, and 50% are measured in the spectral range 0.23–2.8 μm (0.44–5.39 eV) at room temperature using the ellipsometric technique. Based on these data, the optical conductivity σ related to interband transitions is calculated. The collision frequency γ and the concentration of conduction electrons N are determined in the intraband absorption region. It is established that the addition of manganese results in the formation of a new impurity band in the copper electron spectrum which is located by 2.2 eV lower than the Fermi level and is split into two energy subbands due to the exchange interaction.