

FEATURES OF ELECTRIC AND PHOTOELECTRIC
PROPERTIES OF $\text{AgCd}_{2-x}\text{Mn}_x\text{GaSe}_4$ SOLID
SOLUTIONS

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S u m m a r y

Temperature dependences of the conductivity coefficient and the thermal electromotive force, as well as the spectral distribution of photoconductivity, of $\text{AgCd}_{2-x}\text{Mn}_x\text{GaSe}_4$ solid solutions with the isovalent substitution $\text{Cd} \rightarrow \text{Mn}$ have been studied. The results of x-ray phase analysis of the $\text{AgCd}_{2-x}\text{Mn}_x\text{GaSe}_4$ system testify that an extensive solid solution with the limiting composition $\text{AgCd}_{0.74}\text{Mn}_{1.26}\text{GaSe}_4$ emerges in it. The photoconductivity of $\text{AgCd}_{2-x}\text{Mn}_x\text{GaSe}_4$ alloys has been considered, and, by analyzing the position of intrinsic photoconductivity maximum, the band gap width at $T \approx 297$ K has been evaluated. Within the solid solutions range, the gap width increases from about 1.75 eV for pure $\text{AgCd}_2\text{GaSe}_4$ to 2.3 eV for the composition containing 40 mol% $\text{AgCd}_2\text{GaSe}_4$ and 60 mol% “ $\text{AgMn}_2\text{GaSe}_4$ ”. All the single-phase solid solutions turned out to be photosensitive with the multiplicity of conductivity variation at the 10^3 -Lx illumination ranging from about 10 to 10^3 , depending on the specimen composition.