

STUDIES OF InSe AND GaSe LAYERED
CRYSTALS INTERCALATED IN IODINE VAPOR

*Z.D. Kovalyuk, V.Y. Duplavyi, M.M. Pyrlja,
V.V. Netyaga, O.M. Sydor*

I.M. Frantsevych Institute for Problems of Materials
Science, Chernivtsi Subdivision,
Nat. Acad. of Sci. of Ukraine
(5, Iryna Vilde Str., Chernivtsi 58001, Ukraine;
e-mail: *chimps@ukrpost.ua*)

S u m m a r y

Iodine intercalates of InSe and GaSe layered single crystals have been obtained. Excitonic transmission spectra are studied for insertion compounds $\langle I \rangle$ GaSe and $\langle I \rangle$ InSe at a temperature of 77 K. In the course of iodine absorption, the energy position of the excitonic maximum is found to shift and the half-width of the excitonic band to vary. For $\langle I \rangle$ GaSe, both changes are found to be nonmonotonous. The frequency dependences of the impedance have been measured for $\langle I \rangle$ GaSe intercalates, and the corresponding equivalent circuit has been proposed. An isotype heterojunction on the basis of $\langle I \rangle$ GaSe is fabricated, and its current–voltage and capacitance–voltage characteristics, as well as the spectral dependences of the quantum efficiency of a phototransducer, are measured.