

Arsenic trisulphide in isotype amorphous– crystalline heterojunctions

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Abstract

Results are given of electrophysical properties of isotype amorphous As_2S_3 -crystalline p-Si heterojunctions. It is shown that the forward currents are limited by the space charge in As_2S_3 and the reverse ones are limited by emission through the barrier formed as a result of a discontinuity in the band edges at the interface. Using the respective theories describing the current flow laws in these two cases, the number of important parameters of vitreous arsenic trisulphide are evaluated, such as the trap density and the parameter of their distribution within a certain interval in the gap, the hole drift mobility, the electron affinity, and the work function. The possible energyband diagram of the heterojunction is presented.