A k.p BAND MODEL FOR GeTe AND SnTe
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of a number of the kinetic coefficients such as the Hall coefficient, the Nernst-Ettingshausen coefficient, as well as thermoelectric power and thermoconductivity coefficients can be satisfactorily explained if you employ the value of the density of states effective mass of holes in the second band of order 1.5-3.0 \( m^* \).

The result of Shubnikov-de Haas effect measurement is well known, however, it is very difficult now to make any convincing conclusions as to the reason of a contradiction between the data from experiments in the weak or zero and the strong magnetic field. It is possible that you are right in assuming the presence of a third valence band. One can believe that the influence of this band is more remarkable at the higher temperatures.

ROGERS, L. M. — What is the highest concentration of holes you have obtained in PbTe and what was the dopant?

\[
\left[ p^* = \frac{1}{R_{77} e} \right]_{\text{max}} = 2 \times 10^{20} \text{ cm}^{-3}.
\]

Dopant : Na

ANDREEV, A. A. — The maximum value of the concentration \( p = \frac{1}{eR_{77} e} \) in our samples of p-type PbTe is equal to \((3-3.5) \times 10^{20} \text{ cm}^{-3}\). The doping by Na has been applied to obtain such a high value of the concentration.

ALBANY, H. J. — Did you observe any Hall ratio kink as a function of hole concentration in the materials investigated? May I know which values you obtained for thermal energy gaps in Pb-rich alloys?

ANDREEV, A. A. — It seems that there are no kinks in the concentration dependences of the Hall effect; however, if any kinks take place, they are small and they are within the limits of the accuracy of the measurements. The accuracy is of the order of 5-10 %.

From the data on the intrinsic conductivity we have obtained the value of the gap between the conduction band edge and the second valence band edge. This value turns out to be equal to 0.3-0.35 eV for \( \text{Pb}_{0.9}\text{Sn}_{0.2}\)Te.

A k.p BAND MODEL FOR GeTe AND SnTe (1)

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Résumé. — En utilisant un modèle de bandes k.p, basé sur un fort couplage transverse à travers de faibles bandes interdites au point L, on trouve un accord assez correct avec de nombreux résultats expérimentaux pour GeTe et SnTe.

Abstract. — The use of a k.p band model based on strong transverse coupling across small energy gaps at the L-point gives fairly consistent agreement with a variety of experimental results for GeTe and SnTe.