V_y depends on the sign of N. When N = 0 we always have $V_y \sim V_x$. This explains why the motion of the normal regions was observed in [8] in indium ($N \neq 0$) but not in tin (N = 0).

[1] J. Bardeen, Phys. Rev. Lett. 13, 747 (1964).

[2] P. G. De Gennes and P. Nozieres, Phys. Lett. 15, 216 (1965).

[3] L. D. Landau and E. M. Lifshitz, Elektrodinamika sploshnykh sred (Electrodynamics of Continuous Media), Fizmatgiz, 1959, p. 228

[4] I. M. Lifshitz, M. Ya. Azbel', and M. I. Kaganov, JETP 31, 63 (1956), Soviet Phys. JETP 4, 41 (1957).

[5] A. F. Andreev, JETP 47, 2222 (1964), Soviet Phys. JETP 20, 1490 (1965).

[6] E. A. Kaner and V. G. Skobov, JETP 46, 1106 (1964), Soviet Phys. JETP 19, 749 (1964).

[7] B. W. Maxfield and E. F. Johnson, Phys. Rev. Lett. 15, 677 (1965).

[8] W. De Sorbo, Philos. Mag. 11, 853 (1965).

1) For long waves $\zeta(x = a_n/2) \approx \zeta(x = -a_n/2)$.

PRESSURE DEPENDENCE OF ELECTRON EFFECTIVE MASS IN INDIUM ANTIMONIDE

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By changing the width of the forbidden band in a crystal, hydrostatic compression affects the value of the effective mass of the carriers. If the band is non-parabolic, as is the conduction band in InSb, the effective mass varies with the filling of the band, and the pressure can have diverse influences on the effective mass.

According to Kane's theory, the electron effective mass m_n at the bottom of the conduction band is given by the formula

$$\frac{m_0}{m_n} = 1 + \frac{\epsilon_p}{3}\left(\frac{2}{\epsilon_g} + \frac{1}{\epsilon_g + \Delta}\right) , \qquad (1)$$

where $\epsilon_g = \epsilon(\Gamma_{1c}) - \epsilon(\Gamma_{15v})$ is the width of the forbidden band at the Γ-point, Δ the energy of spin-orbit splitting of the valence band at the Γ-point, $\epsilon_p = (2m_0/\hbar^2)\mathcal{P}^2$, $\mathcal{P}$ the matrix element of the interaction between the states Γ_{1c} (conduction band) and Γ_{15v} (valence band), and m_0 the mass of the free electron.

Under the usual assumption that ϵ_p is not affected by small changes of the lattice period, the mass m_n is almost proportional, according to (1), to ϵ_g, which in InSb increases linearly with the pressure P with a coefficient $d\epsilon_g/dP = 1.6 \times 10^{-5}$ eV/atm.

We undertook an experimental study of the influence of hydrostatic pressure up to 16.5 katm on the effective mass m_n of the electrons in InSb at T = 96°K. To this end, we measured the thermal emf and the Hall effect in classically strong magnetic fields, when neither de-