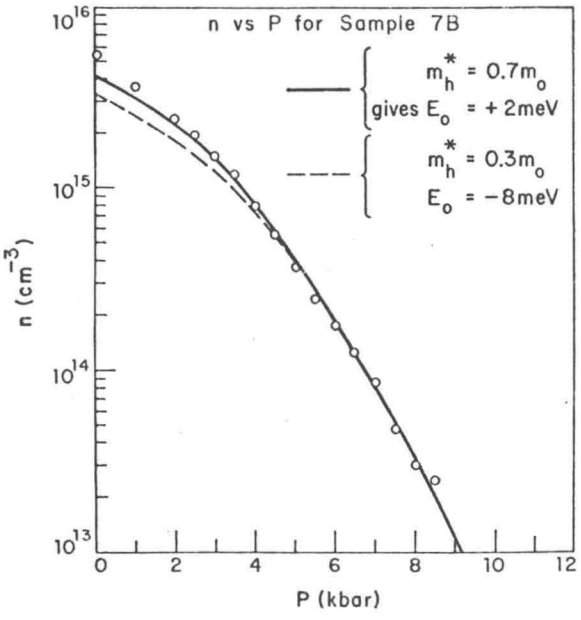


FIG. 5. Number of electrons in sample 7B as a function of pressure. The points are the values of $n$ deduced from the experimental data. The lines are calculated from the Kane's $\vec{k}\cdot\vec{p}$ model with $P_K = 8.4\times10^{-8}$ eV/cm, $\alpha = dE_g/dP = 7.0\times10^{-6}$ eV/bar.

kbar), $R$ is constant initially and then shows strong quantum effects but remains negative. The resistivity rises very rapidly with transverse magnetic field from 0.03 Ω cm to more than 80 Ω cm at 20 kG. At high fields the Hall angle was less

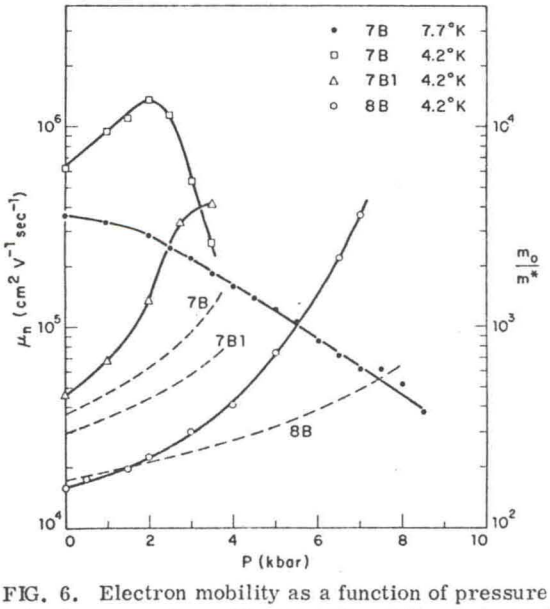


FIG. 6. Electron mobility as a function of pressure for the three samples. The variation of the reciprocal effective mass due to the change in $E_g$ is shown by the dashed lines for comparison. The mobility is seen to increase faster than $1/m^*$ at low pressure, and for sample 7B at 4.2 °K to turn downward above 2 kbar.

TABLE I. Values for the carrier concentrations and mobilities at atmospheric pressure.

| | | 77 °K | | | $P=0$ | | 4.2 °K | | $P=0$ | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample | $x$ | $p$ ($cm^{-3}$) | $\mu_p$ ($cm^2 V^{-1} sec^{-1}$) | $n$ ($cm^{-3}$) | $\mu_n$ ($cm^2 V^{-1} sec^{-1}$) | $p$ ($cm^{-3}$) | $\mu_p$ ($cm^2 V^{-1} sec^{-1}$) | $n$ ($cm^{-3}$) | $\mu_n$ ($cm^2 V^{-1} sec^{-1}$) |
| 7B | 0.149 ± 0.005 | $1.5\times10^{16}$ ($P>5$ kbar) | 450 ($P>5$ kbar) | $5.3\times10^{15}$ | $3.7\times10^5$ | ... | ... | $3.4\times10^{14}$ | $6.3\times10^5$ |
| 7B1 | 0.149 ± 0.005 | $6.3\times10^{17}$ | 174 | $3.0\times10^{15}$ | $3.2\times10^4$ | $1.5\times10^{17}$ | 76 | $8.8\times10^{14}$ | $4.6\times10^4$ |
| 8B | 0.138 ± 0.005 | $8.3\times10^{17}$ | 168 | $4.8\times10^{15}$ | $2.5\times10^4$ | $7.6\times10^{17}$ | 78 | $3.2\times10^{15}$ | $1.6\times10^4$ |