

## **DETERMINATION OF THE CHARGE CARRIER SYSTEM PARAMETERS IN $\text{Pb}_{0.82}\text{Sn}_{0.18}\text{Te}$**

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The temperature dependences of electrical conductivity ( $\sigma$ ), Hall coefficient ( $R$ ), thermopower ( $\alpha$ ), and Nernst–Ettingshausen coefficient ( $Q$ ) for five  $\text{Pb}_{0.82}\text{Sn}_{0.18}\text{Te}$  samples with different charge carrier concentrations in a temperature range of 100–300 K have been studied. According to the obtained experimental data, the temperature dependences of the mobility and the effective scattering parameter have been calculated. The main features of the experimental data can be interpreted in terms of a two-band model of the valence band structure with several groups of holes involved in the transport phenomena. It has been found that the behavior of the temperature dependence of the effective scattering parameter significantly depends on the charge carrier concentration. The determined quantitative values of the effective scattering parameter are consistent with the concepts of a mixed scattering mechanism.

**Keywords:** Electrical conductivity, The Hall effect, The Nernst–Ettingshausen effect, The Seebeck effect

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