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Structural Defects and Electrical Properties of Extruded Samples of  $\text{Bi}_{85}\text{Sb}_{15}$  Solid Solutions

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Farkhad SAMEDOV, Mail TAGIEV  
The Institute of Photoelectronics  
Azerbaijan Academy of Sciences  
370141, Baku - AZERBAIJAN

 [Keywords](#)  
 [Authors](#)



[phys@tubitak.gov.tr](mailto:phys@tubitak.gov.tr)

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**Abstract:** The effect of 5 hours annealing in vacuum  $\sim 10^{-3}$  Pa at 503 K on the electroconductivity ( $\sigma$ ), the coefficient of thermoelectric power ( $\alpha$ ) and the Hall coefficient ( $R_H$ ) for extruded samples of  $\text{Bi}_{85}\text{Sb}_{15}$  has been investigated in the temperature range from  $\sim 77$  K up to  $\sim 300$  K. The samples were taken with a different concentration of Pb (lead) up to  $\sim 0.1$  a.w %. The anisotropy of electrical properties of these samples was also studied in the temperature range between 77 K and 300 K and in the presence of magnetic field up to  $\sim 74 \times 10^4$  A/m. It is established that unannealed samples are nearly insensitive to the amount of lead and to the strength of the applied magnetic field. With increasing the amount of Pb we observed inversion of signs of  $\alpha$  and  $R_H$  from n to p-type. The obtained results are interpreted within the assumption that the extrusion of  $\text{Bi}_{85}\text{Sb}_{15}$  samples may give rise to a creation of deformation defects which act as scattering centers for electrons and disappear with annealing.

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