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Peculiarities of transport properties of thin bismuth wires doped with tin and possibility to increase thermoelectric efficiency of p-branch on their basis

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Abstract

The most typical peculiarities of galvano- and thermomagnetic properties of thin single crystal bismuth wires doped with tin (up to 0.07 at.%) obtained by us the last years are analyzed with the purpose to reveal the ratio of contributions of charge carrier scattering mechanisms in various temperature intervals (2.1-300 K). Influence of degree of actuality of various groups of charge carriers and doping with tin impurities on the power factor value in the region of positive values of the Seebeck coefficient is studied.

Keywords: single crystal bismuth wires, galvano- and thermomagnetic properties, tin doped wires