

The thermopower in bismuth whiskers

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<https://doi.org/10.1002/pssa.2210530107>

Abstract

The temperature dependence of the thermopower in Bi whiskers of different thickness (0.3 to 6 μm) is measured within the temperature range 77 to 300 K. At low temperatures the thermopower in the thinnest whiskers changes its sign and becomes positive. Theoretical calculations of the thermopower in Bi whiskers are carried out taking into account the phonon drag effect. Numerical computations prove that the change of sign of the thermopower in thin Bi whiskers at low temperature is caused by phonon drag effect.

Keywords: thermopowers, thinnest whiskers, phonon drag

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