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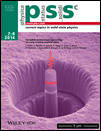
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* Bi-Te wires;
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* thermopower

**Abstract**

We present a study of the electrical, transport and thermoelectric properties of Te- doped single- crystal Bi wires in a glass capillary. The tellurium concentration ranged up to the solubility limit. Measurements of resistance and thermopower were carried out over a wide range of temperatures (2–300 K) and magnetic fields (0–14 T). The shift of the Fermi level by Te doping of Bi wires is calculated from the Shubnikov de Haas oscillations. The effect of quantum confinement and the wire boundary scattering at low temperatures is significantly suppressed for Te- doped samples, which are consistent with general theoretical considerations. An anomaly of the thermopower in the form of sign inversion from negative to positive was detected at an electron concentration of ∼1×1020 cm-3. The observed anomaly disappears after further doping. The effect is interpreted in terms of the manifestation of the features in thermopower at an electronic topological transition (2 1/2 Lifshitz impurity phase transition). (© 2014 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim)

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