

Electrical transport properties of single-crystal Bi₂Te₃ nanowires

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Single-crystal Bi₂Te₃ nanowires of 55 nm and 220 nm in diameters were fabricated by template-assisted electrochemical deposition. The electrical transport properties of the nanowires in the temperature range 1.8-300 K were measured by contact with FIB-deposited nonsuperconducting Pt or superconducting W-electrodes. When the individual wire is contacted with W-electrodes, a series of exotic quasi-periodic oscillations were observed and the amplitude of the oscillations was unusually intensified near 3.5 K below the T_c, 4.5 K of W-electrodes. When the wire is contacted with nonsuperconducting Pt electrodes, a series of significant magnetoresistance oscillations were observed in 55 nm wire under perpendicular magnetic field but not seen in parallel field.