

Fabrication and contacting of single Bi nanowires

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Bismuth nanowires with diameters between 80 and 500 nm are electrochemically fabricated in etched single-pore membranes. By means of two macroscopic planar electrodes on either side of the membrane, single nanowires are successfully contacted with contact resistances of only several ohms. The contacting method is presented and the measured resistance-versus-diameter behaviour of Bi nanowires is discussed, considering both electron scattering at the wire surface and that at the grain boundaries. Since the wires remain embedded in the membrane, lithographic processes and direct exposure of the wires to air are avoided.