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Resistivity of Endotaxial Silicide Nanowires Measured with UHV-STM Nanoprobe[1] SAM TOBLER, PETER BENNETT, Arizona State University — We have measured the resistivity of endotaxial silicide nanowires on silicon using a UHV STM nanoprobe in a 2-point configuration, which allows separation of intrinsic resistivity from contact resistance using a variable probe spacing. A fixed contact is provided by a thin metal film deposited by shadow evaporation with an edge profile 100nm wide and sheet resistance 500 ohms, while the second contact is provided by the STM tip. A controlled approach with 15 Ang displacement beyond the tunneling position allows for reliable and repeatable electrical contact without damage to the tungsten STM tip. Using this method, we have obtained resistivity values of 30 micro-ohm-cm and 120 micro-ohm-cm for $CoSi_2$ nanowires of width 40nm and 20nm, respectively, on Si(110). The increase of resistivity with decreasing width is attributed to boundary scattering along the sidewalls of the nanowires.

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