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A shadow-edge contact for epitaxial nanostructures on silicon
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— We have developed a method to apply a thin (5 nm) metal film with a sharp edge (100 nm) onto the surface of a silicon sample in ultrahigh vacuum, to provide a counter-electrode for the study of electrical properties of epitaxial nanostructures. Film sheet resistance, Rs, is monitored continuously during deposition, to identify "electrical closure" of small grains. Film roughness, σ, is measured ex situ using Atomic Force Microscopy and in situ using Scanning Tunneling Microscopy. We find that Pt is more suitable than Au, attaining $Rs \approx 300\Omega/sq$ and $\sigma \approx 10nm$ versus $Rs \approx 1000\Omega/sq$ and $\sigma \approx 50nm$ for Au.

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