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The effect of electron-surface scattering and thiol adsorption on the electrical resistivity of gold ultrathin films

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Highlights

- We prepared ultra thin films (10 nm) on mica on top of a chromium seedlayer (<1 nm)
- We prepared samples with different topographies controlling the substrate temperature
- We studied the contribution of the different scattering mechanisms on the resistivity
- We developed a discernment method based on thiol adsorption

Abstract

In order to study the effect of electron-surface scattering in gold ultrathin films (~10 nm), we have prepared a set of Au samples on mica on top of a chromium seedlayer (< 1 nm). Chromium is added as a metallic surfactant which enables surpassing the electric percolation threshold for substrate temperatures above room temperature. We prepared samples with the same thickness but different topographies setting different substrate

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