



Au(111) on Mica thin film

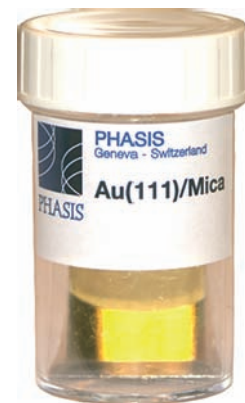
Phasis Au(111) thin films are epitaxially grown on freshly cleaved mica substrates. We are using a magnetron sputtering technique to grow the films in controlled high vacuum deposition systems. The films present an extremely high degree of structural quality including surfaces with well defined terraces.

Applications

Au(111) thin films can be advantageously used for

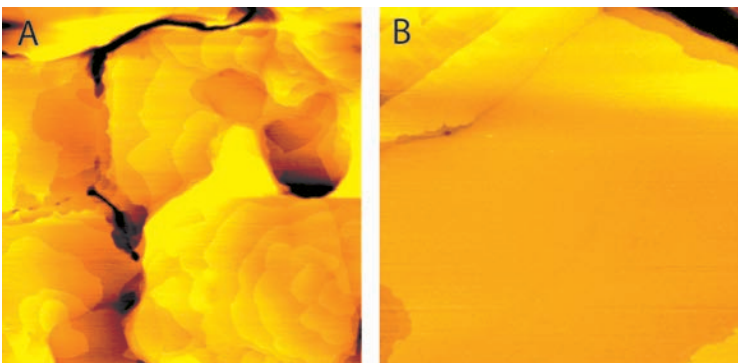
- scanning probe microscopy (SPM) calibration purposes using the gold terraces unit cell steps of 2.36 Å.
- SPM studies for educational purposes.
- studies of ultrathin overlayers such as self-assembled monolayers (SAMs) taking advantage of the large flat gold terraces.

Gold specifications	
Typical Au Thickness	200 nm
Au Cell	face centered cubic (fcc) (111)
c_{Au111}/a_{Au111} parameters	2.36Å, 2.88Å
Substrate & Dimensions	
Substrate	high grade cleaved mica sheets
Mica Muscovite Composition	$KAl_2(AlSi_3O_{10})(F,OH)_2$
Substrate dimension	25.4 mm x 25.4 mm
Gold covering dimensions	20x20 mm ² , 4x10x10 mm ² , 8x4x8 mm ² , 16x4x4 mm ² ,...



Surface quality

The surface quality of the thin films is tested using either atomic force microscopy (AFM) or scanning tunnelling microscopy (STM). Image A is a typical 2 µm x 2 µm AFM image presenting large terraces on a freshly grown sample (measurements are done ex-situ). The z scale is 5 nm. Image B is a 0.5 µm x 0.5 µm STM image of a 2 month old sample kept inside its box. The z scale is 3 nm.



Gold size and thickness

All our gold films are grown on 25.4 mm x 25.4 mm high grade freshly cleaved muscovite mica substrates (1 inch x 1 inch). We offer the gold films in various geometries and sizes. The complete list of available geometries can be found on our website. The typical gold thickness we provide is 200 nm.

Shelf life

We observe that the quality of the gold surface degrades with time due to some contamination. In order to slow down this process, we package the gold thin films in pure nitrogen immediately after the deposition process. This procedure allows the extension of the shelf life of the product to three to four months. All our films are freshly grown, we keep no stock of this product and we strongly recommend the use of the films in a short time scale after reception.