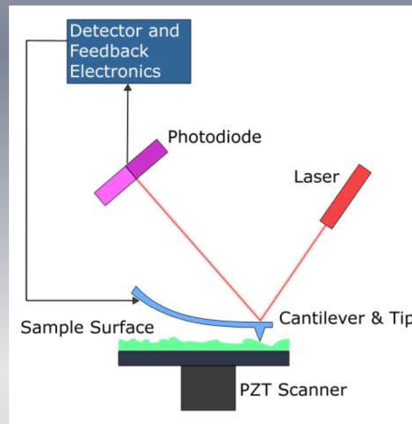
Atomic Force Microscopy

Description

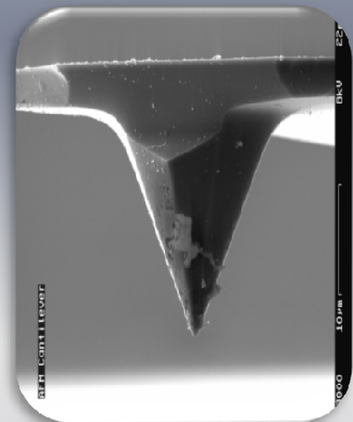
*A**tomic force microscope** (AFM) or Scanning Force Microscope (SFM) is a very high-resolution scanning probe microscope, with demonstrable resolution of fractions of a nanometer, more than 1000 times better than the optical diffraction limit. AFM is one of the foremost tools for imaging, measuring and topography characterizing up to nanoscale. The information is gathered by "feeling" the surface with a mechanical probe. Piezoelectric elements, that facilitate tiny but accurate and precise movements on (electronic) command, enable the very precise scanning. AFM also allows measurement of interaction forces between tip and surface sample.*

Basics

Block Diagram of AFM

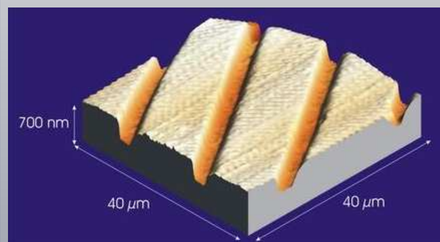


SEM view of an AFM Tip (x 3000)

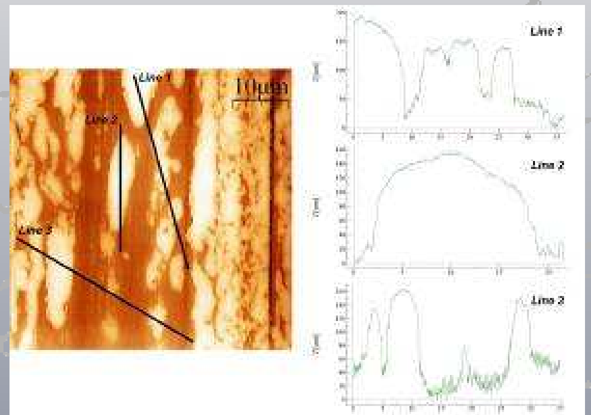


Results

3D Imaging of a surface



Topographical analysis of a triboformed film :
One can observe small « hills » of about 200nm in height



AFM Q-Scope Ambios:

-PZT scanner X-Y : 90 x 90 µm
-Z Range : 12 µm
-Open loop
-X & Y Resolution : 12 Å
-Z Resolution : 2,5 Å
-Contact and Tapping Mode

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