



Multimode: Nanoscope IIIa


Starting


- Switch on the computer.
- Log in on the computer (Gaspar login)
- Double click on CEA and login using your AFM password. (See P. Charpillot)
- Start the program "*Nanoscope V530R*"  (the AFM will start automatically),
- Switch on the camera's lamp.
- In the program, click on the microscope symbol  to connect the computer to the AFM.

Tuning of the laser


- Mount the tip on the support holder (see Figure 2). You can check with the monocular if the tip is in a good shape.
- Put the mirror in horizontal position (see Figure 5).
- Place your sample onto the microscope (using appropriate metal plate)
- Lower the Sample stage (see Figure 1).
- **! Watch out! Tip down means scanner up**
- Then introduce the tip holder in the device and screw it (see Figure 3)
- Raise the sample stage until it is close (but not touching) the tip. This is done by checking if you can see BOTH a shadow and the tip on the monitor, by altering the focal length
- Place the laser on the tip using the X and Y axis adjustment (Figure 5, left)
- You can use a piece of paper in order to check the laser alignment (see Figure 4). Adjust the laser reflect using the X-axis and Y-axis screw (see Figure 5) in order to get a intense spot on the piece of paper.
- Adjust the mirror to maximize the "*SUM*" (typically >1.5)
- Adjust the detector the center the reflection signal: Both the horizontal and the vertical values should = 0. (± 0.1 is OK)
- Change the switch on the left of the microscope to the appropriate mode. (Normally TM: Tapping Mode)

Measurement

- Prior to the measurement, you need to determine the parameter of your tip. Click on , set the "*drive amplitude*" at 0, and click on "Auto tune".
- Return to the view mode by clicking on the microscope image in the top left-hand corner.

- Lower manually the cantilever using the button "*down*"(see Figure 1) without touching the sample. The rest of the approach has to be done automatically by pressing  .

Stop the system

- Press  to lift up the tip. Lift manually the cantilever using the button "*up*"(see Figure 1)
- Remove the holder from the AFM and then remove the tip.
- Take out your sample.
- Close the AFM program
- Log off using the CEA icon
- Switch off the computer (Must do this manually, when instructed to do so by the computer).

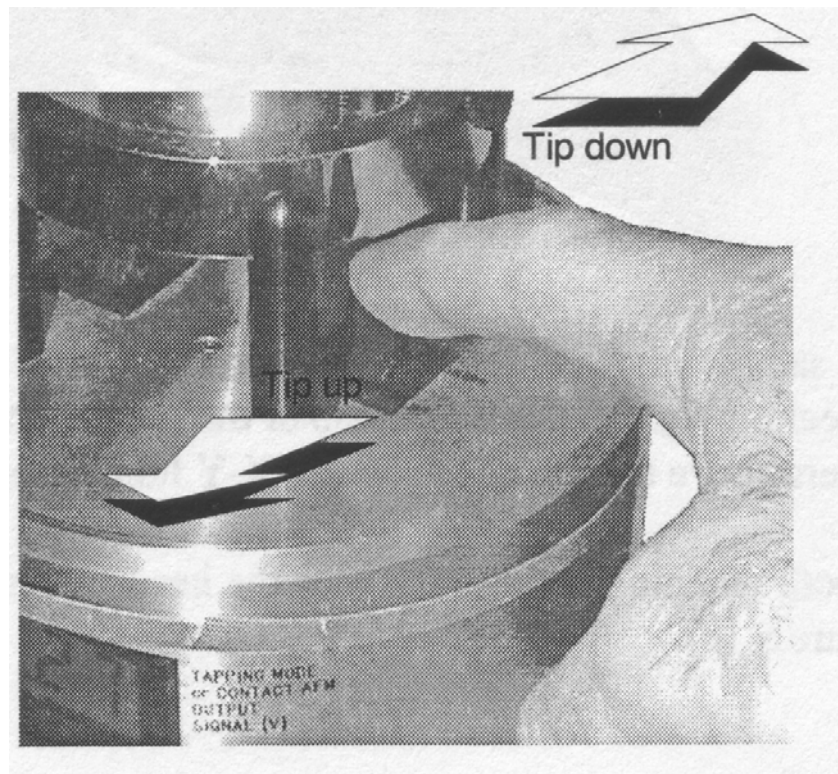


Figure 1

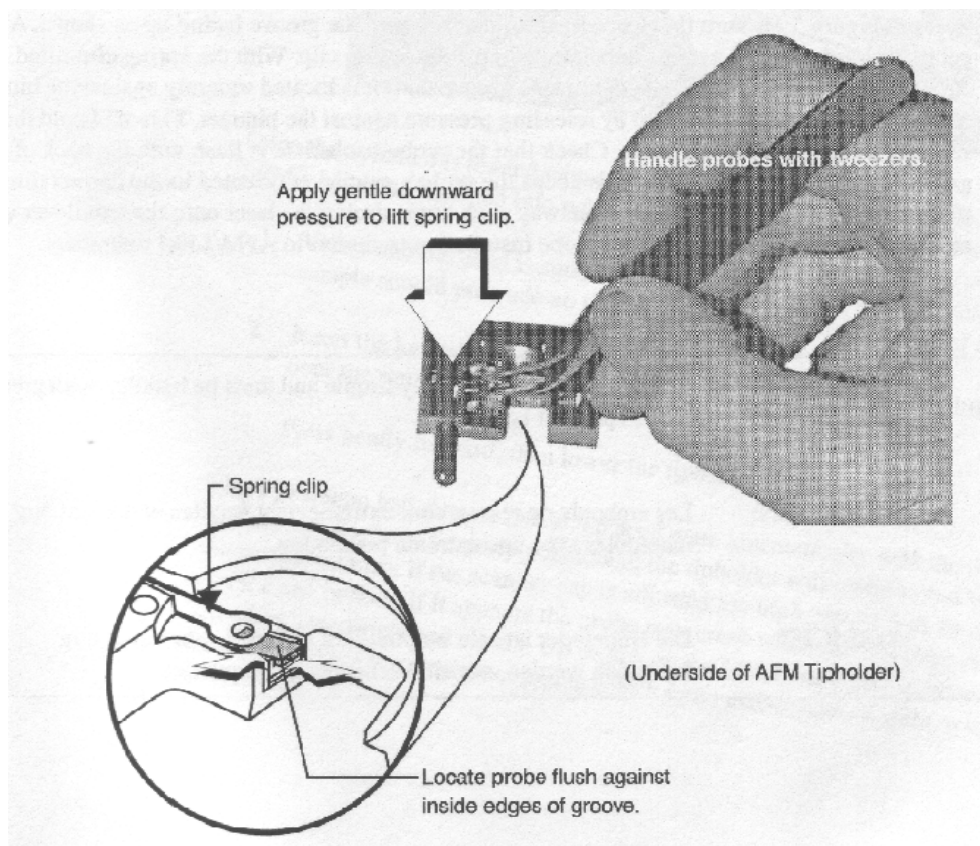


Figure 2

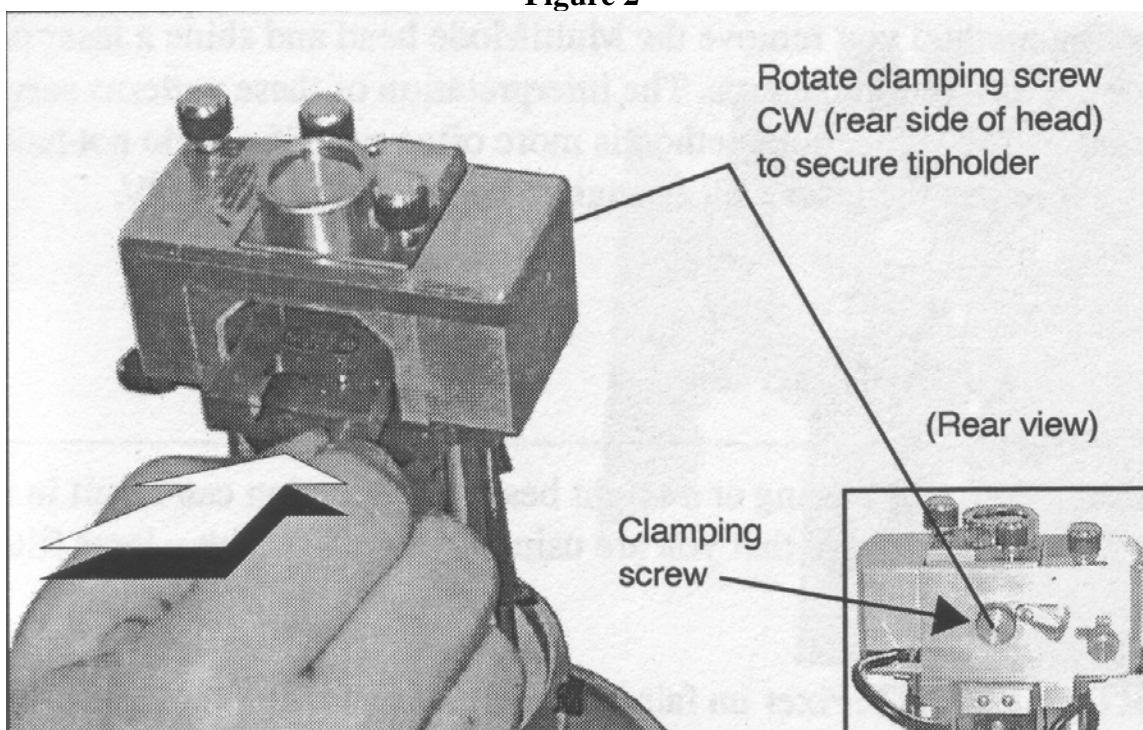


Figure 3

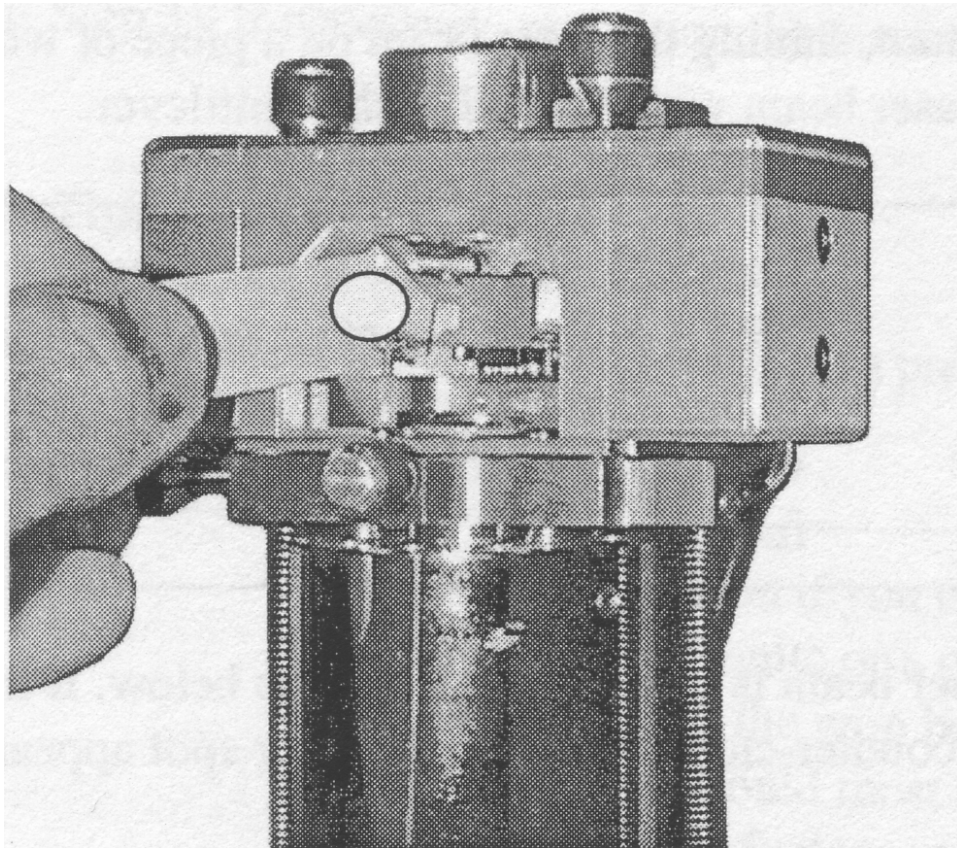


Figure 4

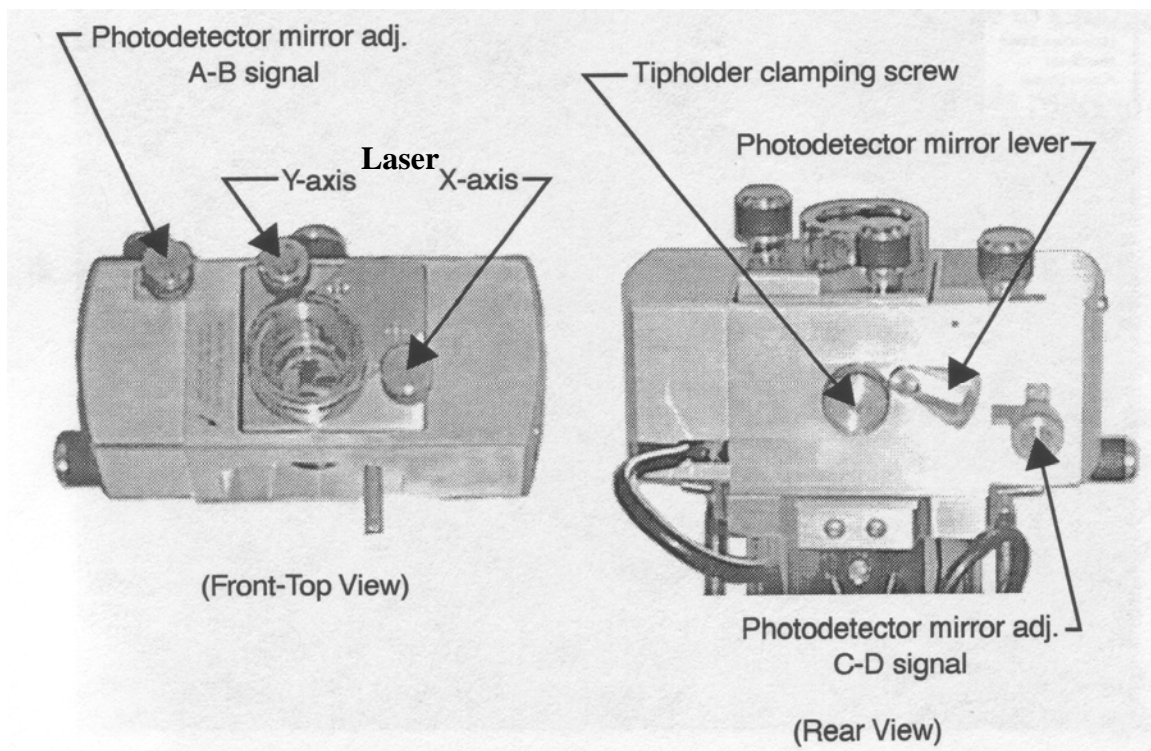


Figure 5