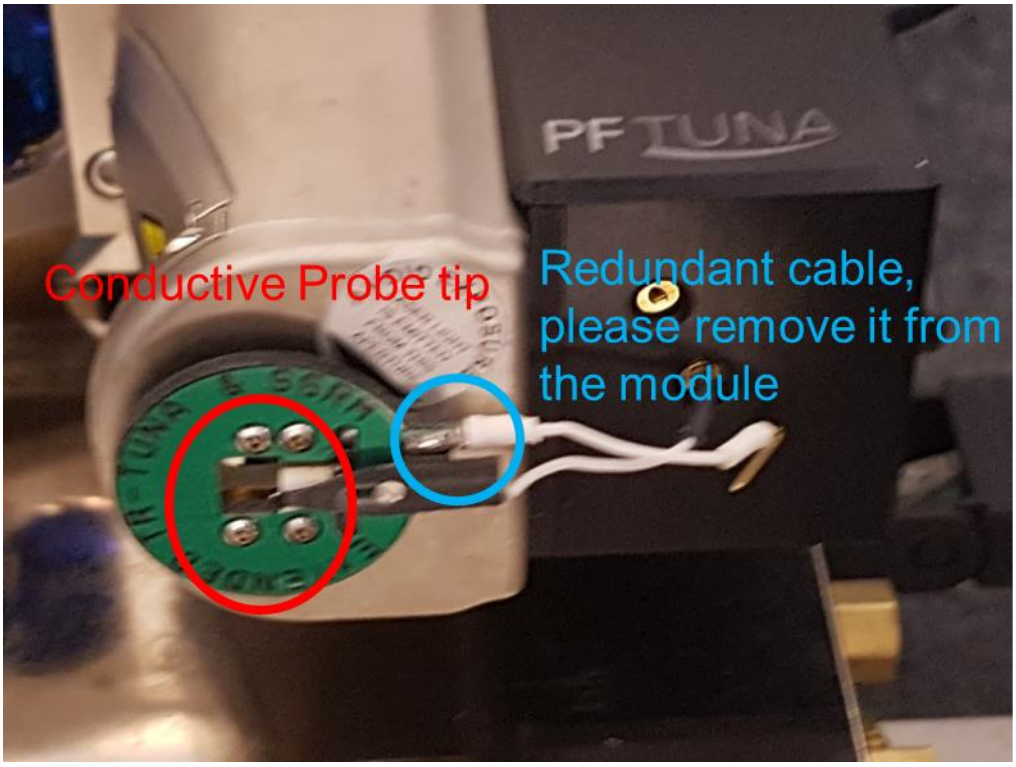
✧ The most important thing of the electrical measurements of the AFM including the conductive AFM and surface potential measurement is checking the manual of the AFM. The manual is available in the program of Brucker AFM (press F1). So, before start the experiment, please peruse the manual carefully.

Conductive AFM

1. Prepare the conductive tip (SCM-PIT-V2 tip).
2. Load the tip on the conductive module
3. 

4. Start the AFM program.
5. Select the electrical measurement and the conductive AFM measurement.
6. Ground the sample with the machine. Please use the port # 13 or 14.

KPFM

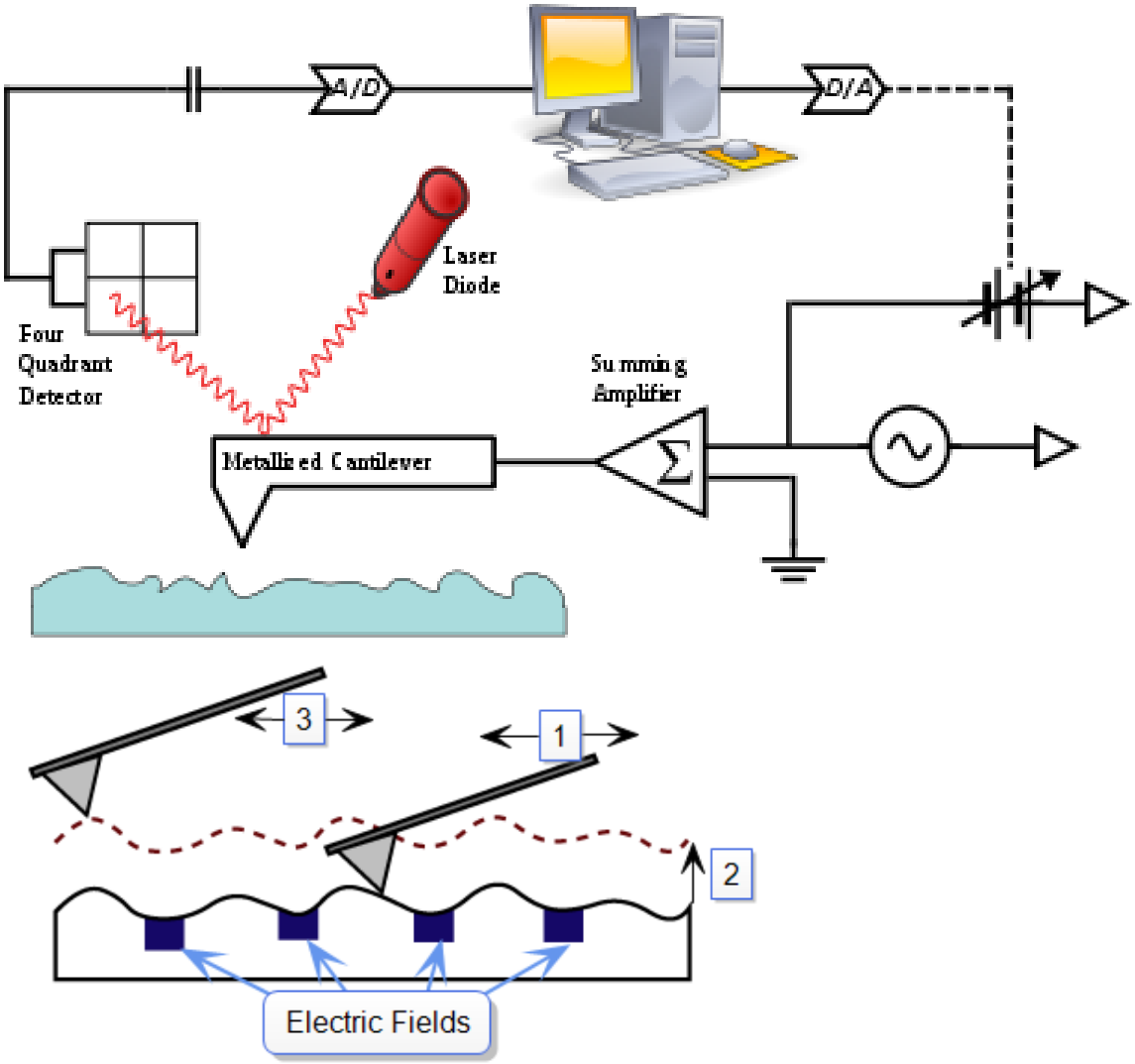
1. Prepare the conductive tip (SCM-PIT-V2 tip).
2. Load the conductive tip on the normal module (Do not use the conductive module)

3. Start the AFM program.
4. Select the electrical measurement and the conductive AFM measurement.
5. Ground the sample with the machine. Please use the port # 13 or 14.

✧ Some of the substrates may absorb the moisture and foreign particles on the substrate. If so, the surface potential may be far off from the desired value. Thus, before the measurement, find the reference potential level of the substrate by pre-baking substrate.

Details of KPFM

1. KPFM requires "two" step scanning
2. Important parameters: Lifting height and scan rate (the values may need to be adjusted by the experimenters.)
    a. Lifting height: 15~20 nm (Note: the tip may be crushed with too small value of the height)
    b. Scan rate: To minimize the noises, the scan rate of KPFM measurement should be sufficiently slow (~0.3 Hz).



Details of CAFM

1. 1 Hz scan rate is good enough
2. The CAFM line (connected to the AFM head) is extremely fragile. The experimenter should carefully connect the line to the machine.