

A LOW TEMPERATURE SCANNING TUNNELING MICROSCOPY WITH THE CAPABILITY TO MEASURE FORCES.

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In this poster we present a low temperature Scanning Tunneling Microscope (STM) with the capability to measure forces. This offers us the possibility to also use it for the mapping of transport properties on heterogeneous surfaces such as nano-patterned samples and organic structures, since the force can be used to map the topography of the surface, without it having to be conducting at every spot. The conducting spots can then be approached by the tip to be studied by Electron Tunneling Spectroscopy (ETS), which is a powerful technique to probe local electronic and vibrational states. The force sensor consists of a quartz tuning fork, which' high stiffness maintains the stability of the microscope, while its low power consumption ensures low temperature compatibility. It also allows us to use bulk tips presenting us with a wide variety of conductors as spectroscopic probe, including magnetic and superconducting materials.