

**LOW TEMPERATURE MICROSCOPY OF NANOSTRUCTURES USING A
CONDUCTING QUARZ RESONATOR.**

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Usual STM and AFM techniques are very valuable tools in nanoscience but both of them present limitations: STM cannot be used to image insulating samples and the application of an AFM at low temperatures has proven to be difficult.

On the other hand, in many fields of nanoscience, it would be very interesting to have a technique that let us make measurements of the electrical properties of nanostructures on insulated substrates at the temperature of liquid helium.

To facilitate experiments at low temperatures with clear information about the topography, we have developed a scanning probe microscope compatible with an environment at 4.2K. The microscope we have developed consists of a tip placed on one of the legs of a quartz tuning fork. The interaction of the tip with the substrate produces changes in the resonant frequency of the tuning fork and let us image its topography.

References:

[1] Authors, Journal, **Issue** (Year) page.