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Low Temperature Conducting Probe Microscopy of Carbon Nanotubes IVAN BORZENETS, HENOK MEBRAHTU, ULAS COSKUN, MATHEW PRIOR, GLEB FINKELSTEIN, Duke University Physics — In order to measure local electrical properties of nano-devices at liquid He temperatures, we have built an atomic force microscope. The instrument is outfitted with a conducting tip, which allows us to acquire both topography and electrical signals at the same time. The AFM has a scan window of up to 10 microns at low temperature and allows one to translate the sample laterally by up to a millimeter. To find a specific device within this range, the samples structure has to be specially optimized by addition of the "search pattern". The electrically conducting tip of the AFM allows us to make a variety of measurements such as: gating and tunneling, and to apply a mechanical force to the sample.

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