

Abstract Submitted  
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**Self-navigation of STM tip toward a micron sized sample<sup>1</sup>** GUO-HONG LI, ADINA LUICAN, EVA ANDREI, Department of Physics & Astronomy, Rutgers University, DEPARTMENT OF PHYSICS & ASTRONOMY, RUTGERS UNIVERSITY TEAM — Scanning probe microscopy (SPM) of small samples on insulating substrates, for example graphene devices, is of significant current interest as it can provide invaluable information on the electronic, structural chemical and optical properties of these materials. Accessing such samples with SPM often requires locating a micron sized area within a much larger region of several mm. This is a very difficult task because SPM is intrinsically nearsighted and in many cases combining it with larger scan probes such as optical microscopy is not practical. Here we report a simple capacitance-based method to navigate a STM tip operating at low temperatures in strong magnetic field which allows to find such small samples quickly and efficiently. The method consists of back-gate compensation, refocusing during the search, and distinguishing edges of conducting electrodes and the sample.

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