

**COMBINATION OF NON-CONTACT SCANNING FORCE MICROSCOPY  
MODES FOR THE SIMULTANEOUS STUDY OF TOPOGRAPHIC AND  
ELECTROSTATIC PROPERTIES**

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We have implemented several non-contact Scanning Force Microscopy operation modes to obtain a little invasive, stable and high resolution method at the nanometer scale that allows for independent and simultaneous topographic and electric information, of metals as well as dielectric material. By double modulation and feedback we obtain four images that show the topography, phase, surface potential and dielectric constant changes. We have used this technique to analyze a metallic test sample and self assembled monolayer islands of organic molecules on mica. The results prove that data interpretation is highly improved with this combined method.

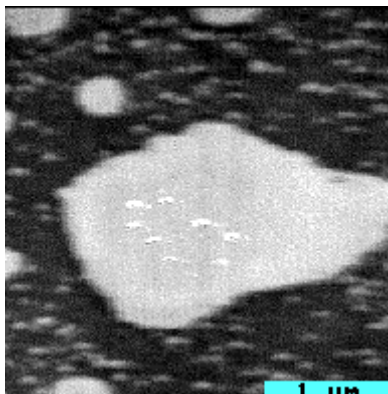


Fig. 1a

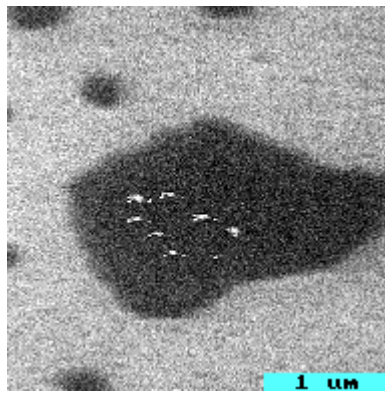


Fig. 1b

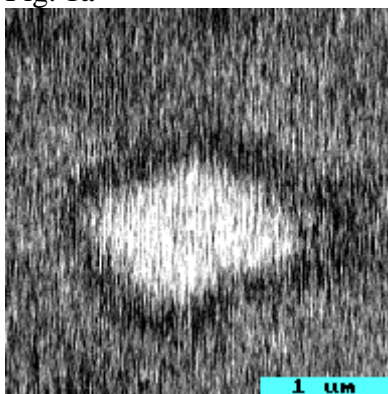


Fig. 1c

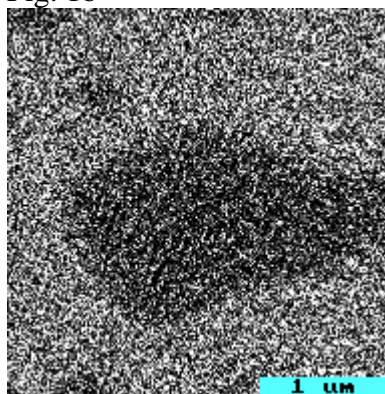


Fig. 1d

Figure legend:

All images in fig. 1 were taken simultaneously with the combined non-contact method proposed in this work. Figures 1a, 1b, 1c and 1d show the topography, phase, contact potential and dielectric constant changes of islands formed by self assembled monolayers of upright silane molecules grown on mica. It can be observed that surface potential is more positive of the island than on the mica (fig. 1c) and the dielectric constant is higher on mica than on the islands (fig. 1d), as we would expect from the hydrophilic properties of mica..