NEW POSSIBILITIES IN SCANNING PROBE MICROSCOPY

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Abstract

Traditionally, scanning probe microscopy has been focused on topographic mapping of various hard samples, such as silicon wafers, occasionally softer samples, such as polymers. Recent progress in advanced probe excitation methods allowed measurement of many nanomechanical properties, such as surface stiffness and adhesion, these new methods also provided unprecedented control of probe-sample interaction forces, thus allowing the mapping of increasingly delicate and complex surfaces. As these methods became mainstream, Bruker leads the way in developing new set of possibilities to complete its large portfolio of SPM measurement modes.

These new possibilities include advancements in Scattering Scanning Near Field Optical Microscopy or sSNOM, a tip enhanced and localized method for IR and visible spectral data collection at the nanoscale. It also includes Raman-AFM integration, which is quickly becoming a standard tool for graphene sample analysis and further applications. The focus is shifting toward chemical identification methods at the nanoscale, or nChemID. Advancements have also been made in AFM operation speeds, where specialized instruments increasing the scanning speed by the factor of 20 or more have become the norm, and increasingly so in biological applications.

These and other topics will be discussed in the first part of this workshop, led by experts from Bruker and MT-M, the second part will involve a hands-on measurement of biological samples on a Bruker AFM, including the presentation of advanced scanning and analytical methods.

Keywords: AFM, Bruker, Bio-AFM, sSNOM, Raman

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