

HIGH RESOLUTION SCANNING PROBE MICROSCOPY OF BIONANOSTRUCTURES

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Fundamental parameter of any kind of microscopy is a resolution. Scanning probe microscopy (SPM) is a powerful instrument to study of biopolymer structure. The key parameter of SPM resolution is a radius of SPM tip. For study of the structure of biopolymers on the solid surface, we have developed the ultrahigh resolution probes for scanning probe microscopy [1]. The radius of curvature of such probes is minimal in the world today (about 1 nanometer), that has allowed to increase resolution at imaging of the structure of biopolymers by SPM. For DNA molecules the resolution of spiral periodicity has been achieved [2]. Also we used high resolution AFM to study hexaglycyclamide, H-Gly6-NH₂ (HGA), adsorption from aqueous solutions on graphite. The formation of two morphologically different epitaxial lamellar nanostructures with noncoinciding sets of growth directions was observed [3]. During high resolution SPM study of short DNA molecules we observed G-quadruplexes formation [4]. By using high resolution probes we studied fibrinogen molecules. For the first time we observed alpha-C domains of fibrinogen molecules in free chain conformation.[5]

References:

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