## Specialization: 010900 Applied physics and mathematics

Program: Nanobiophysics

Department of Molecular Biophysics

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**Study of the interaction of polymers with gold nanoparticles**

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The interaction of DNA with gold nanoparticles was studied. Due to unique properties of gold nanoparticles they provide a wide range of possible applications. Influence of phenanthroline, azobenzene-based surfactant thioglycolic acid on gold nanoparticles along with a capability of the ethylenediaminetetraacetic acid (EDTA) as a reducing agent for gold nanoparticles synthesis were investigated.

Experimental data was obtained by spectrophotometric method. Atomic force microscopy was also used for imaging of the systems investigated.

As a result, an interaction between gold nanoparticles and above-mentioned compounds was observed. A structure formed by DNA, gold nanoparticles and azobenzene-based surfactant was obtained. A successful gold nanoparticles synthesis using an EDTA as a reducing agent was performed at room temperature.

Publications:

Fironov A. “Application of surface plasmon resonance for detection of DNA immobilization on gold surface”, international student conference “Science and Progress”, Saint-Petersburg, November 14-18, 2011.