

## Nanostructure Surfaces

### The formation of massifs nanoparticles Au, Fe<sub>3</sub>O<sub>4</sub>, CoFe<sub>2</sub>O<sub>4</sub> i NiFe<sub>2</sub>O<sub>4</sub>

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Nanosphere lithography method is widely used in obtaining ordered optoelectronic and photonic systems based on nanoparticles (NP) [1]. To produce of NP massifs Au, Fe<sub>3</sub>O<sub>4</sub> and CoFe<sub>2</sub>O<sub>4</sub> and NP monolayers NiFe<sub>2</sub>O<sub>4</sub> us prepared by Langmuir- Blodgett templates with polystyrene spheres with a diameter of 400 or 700 nm; NP Au obtained by condensation of a template placed at an angle of 45° and subsequent annealing to 770 K, and then observed the formation of regions formed from NP of different sizes (Fig. 1). Slow rate of annealing to destruction of the frequency of the system through the action of surface tension forces generated polystyrene drops. Thermoannealing of NiFe<sub>2</sub>O<sub>4</sub>, along with phase Ni, intermetallic FeNi<sub>3</sub> with traces of oxides NiO and NiO<sub>2</sub>.

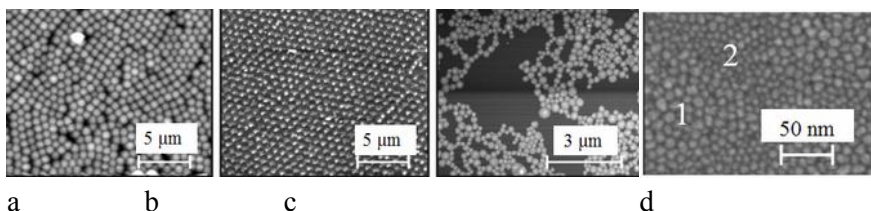


Fig. 1. AFM image of the pattern polystyrene sphere (a); the massifs of NP Au (b) and the massifs of NP CoFe<sub>2</sub>O<sub>4</sub> (c) and NiFe<sub>2</sub>O<sub>4</sub> (d). 1 and 2 - areas clusters of NP with with large or small size respectively

Was established The influence of the average size of NP Fe<sub>3</sub>O<sub>4</sub>, CoFe<sub>2</sub>O<sub>4</sub> and NiFe<sub>2</sub>O<sub>4</sub> (8 - 15 nm) and them form on the ordering processes. A high percentage of magnetic components bcc-Fe led to the emergence of a magneto-optical Kerr effect in systems.

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