Thematic area of your work (one of the thematic areas of International research and practice conference "Nanotechnology and nanomaterials")

Synthesis and catalytic properties of gold nanorods

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Nanostructured gold recently attracted a lot of attention of researchers. This is linked to the unique properties that this metal shows in the form of nanoparticles. These properties differ from macroscopic gold and are related to a large number of atoms located at the surface, and high surface area to volume ratio in the nanoparticles. Among other proreties - surface plasmon resonance, high catalytic and chemical activity.

The aim of our study was to investigate the catalytic activity and changes in morphology of gold nanorods during reduction of 4-nitrophenol to 4-aminophenol.

We demonstrate that gold nanowires act as a catalysts in the process of the reduction of 4-nitrophenol to 4-aminophenol and in course of the reaction - changes of morphology of gold nanorods occurs. In particular we observe decrease of the aspect ratio.

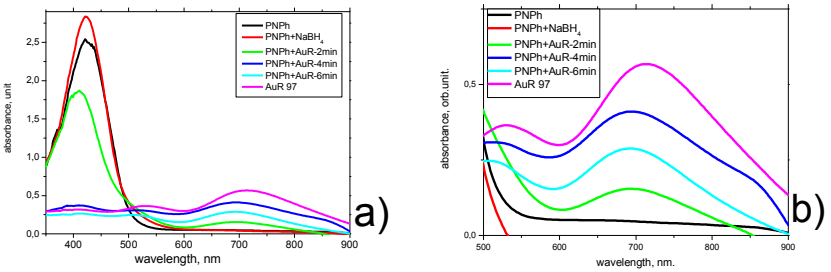

Figure 1. Absorbtion spectra of 4-nitrophenol – sodium borohydride mixture before and after the addition of gold nanoparticles (a), Spectra of the gold nanorods recorded at different times of the 4-nitrophenol to 4-aminophenol reduction reaction.