

The study of change of phases and structural, corrosive properties and cytotoxicity of nanoparticles based on the magnetite

Wednesday, 17 April 2019 14:00 (15 minutes)

Today, magnetic nanoparticles based on metal oxides have great interest by both scientific world and industry. Magnetite Fe₃O₄, which nanoparticles have wide range of application in different fields of science and techniques, is the most popular form of synthesized nanoparticles. There is huge interest to these nanoparticles due to their adsorption properties, good biocompatibility and superparamagnetic properties. Despite the great potential of the application of magnetic nanoparticles in biomedicine, the concentration degree that results toxicity of nanoparticles is still unclear.

The results of the research of dependency of structural and corrosive properties as well as phase transformation from toxicity of nanoparticles based on the magnetite Fe₃O₄ are presented at this work.

Summary

The research of degradation properties of nanoparticles in found that change of crystal structure as the result of perfection degree and the formation of amorphous inclusions lead to the magnetic disorder and the following change of ultrafine magnetic field. The results indicate that the nanoparticles do not exhibit cytotoxic activity with respect to the tested L929, PC-3 and HeLa cell lines, since in all the experimental series the metabolic activity of the studied cells was not less than 70% of the control.

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Session Classification: Condensed Matter Physics

Track Classification: Condensed Matter Physics