Contribution ID: **312** Type: **Oral**

Synthesis and temperature changes of the properties of magnetite nanoparticles

Wednesday, 17 April 2019 17:45 (15 minutes)

In recent decades, the study of metal nanoparticles is one of the leading areas of materials science. Particular attention is caused by magnetite nanoparticles (Fe3O4), which have a number of promising properties that distinguish them from macromaterials, which allows them to be used in nanomedicine for targeted drug delivery, visualization of objects and tissues in vivo in vitro by MRI, cancer treatment, and malignant hyperthermia , as well as in electric batteries [1]. Magnetite nanoparticles are used for the pharmacocorrection of anemic conditions, since iron is part of the blood [2].

This paper presents the results of the synthesis of thermal annealing of magnetite nanoparticles. The results obtained showed that an increase in the annealing temperature leads to a change in the mass and elemental composition of the synthesized nanoparticles. According to the data of energy dispersion analysis, at the processing temperature of 400-500 ° C, the iron content in the samples increases, followed by a sharp drop in the iron concentration and an increase in the oxygen concentration, which indicates phase and structural transformations of the nanoparticles in the annealing process.

Primary author: Mrs YEGIZBEK, Kamila (Bakhtzhankyzy)

Co-author: Dr KOZLOVSKIY, Artem (Astana Branch of the Institute of Nuclear Physics)

Presenter: Mrs YEGIZBEK, Kamila (Bakhtzhankyzy)

Session Classification: Condensed Matter Physics

Track Classification: Condensed Matter Physics