عنوان مقاله:

SVNTESS OF MAGNETTEAND MAGNETTE-SLCAICOLLODALGOL) CORE-SHELL NANOSHELLS

محل انتشار:

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نویسندگان:

SEYYEDEIHINARJES ABDOLLAHI - *Department of Mining and Metallurgy, Amir Kabir University of Technology, ۴۲۴ Hafez Ave Tehran, Tehran, Iran*

MALEK NADERI - *Department of Mining and Metallurgy, Amir Kabir University of Technology, ۴۲۴ Hafez Ave Tehran, Tehran, Iran*

REZA RANJBAR - *Department of Mining and Metallurgy, Amir Kabir University of Technology, ۴۲۴ Hafez Ave Tehran, Tehran, Iran*

GHASSEM AMOABEDINY - *Department of Chemistry Engineering, University of Tehran, Enghelab Ave Tehran, Tehran, Iran*

خلاصه مقاله:

In the recent decade, scientists have focused on spherical core-shell nanostructures because of their unique optical, physical, chemical and magnetic properties. Compared to quantum dots, metal nanoshells attracted more attention which is due to the absence of toxic cadmium in their structures. In this research, synthesis of two different types of gold nanoshells with magnetite and magnetitesilica nanoparticles as cores was studied. First, APTES, a bifunctional organic molecule, was attached to the surface of magnetite nanoparticles synthesized by co-precipitation method and coated by silica. In this way, surface possessed positive charge. Then, colloidal gold was synthesized by adding tri-sodium citrate and HAuCl4 to boiling water by vigorous stirring. Due to its negative charge, the colloids were absorbed to positively charged core-ligand electrostatically. To study the properties of synthesized nanostructures, XRD, TEM and magnetometer tests were conducted. Based on the results, magnetite-silica cores had better magnetic properties due to the magnetization in the range of (-50, 50) emulg, because silica shell prevented oxidizing of magnetite to maghemite. Therefore, it was easier to control, conduct, and detect magnetite-silica-gold nanoshells. Hence, formedical purposes which are the main application of nanoshells, especially for cancer therapy, magnetite- silica-gold nanoshells are more suitable.

کلمات کلیدی:

Magnetite nanoparticles, Colloidal gold, Core- shell nanostructures, Nanoshells

لینک ثابت مقاله در پایگاه سیویلیکا: