

Synthesis of Lanthanum Fluoride Nanocrystals and Modification of Their Surface

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Abstract—The LaF_3 nanoparticles were synthesized in the presence of citric acid and glycine. The products were characterized by X-ray phase analysis, transmission electron microscopy, dynamic light scattering, and infrared spectroscopy. In the presence of organic acids the synthesis was shown to result in a decrease in size of the formed particles. The IR spectroscopic studies revealed that citric acid and glycine acted as modifiers of the surface of LaF_3 particles forming a chemical bond with the surface ions La^{3+} . A suggestion was advanced on the structure of the grafted surface layer. The features of the colloidal behavior of the systems were investigated.

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