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Preparation and properties of sheets of reduced graphene oxide anchored with Nd-La doped $\text{Sr}_2\text{CuMgFe}_{28}\text{O}_{46}$ nanoparticles

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The Nd-La doped $\text{Sr}_2\text{CuMgFe}_{28}\text{O}_{46}$ magnetic nanoparticles were successfully prepared by green sol-gel method. Decorating the magnetic nanoparticles on reduced graphene oxide (RGO) sheets was performed via a facile green chemical reaction strategy, where the reduction of graphene oxide and connection of magnetic nanoparticles with RGO by dopamine, occurred simultaneously. The as-fabricated magnetic nanoparticles were characterized systematically through the use of an X-ray diffraction (XRD), energy dispersive X-ray spectroscopy (EDS), scanning electron microscope (SEM), fourier transform infrared spectroscopy (FT-IR), network analyzer, particle size analyzer (PSA) and a vibrating sampling magnetometer (VSM). The results revealed that the magnetic nanoparticles were spherical-shaped with hexagonal ferrite structure and a grain size of 10 to 98 nm, approximately. Characterization of RGO/Nd-La doped $\text{Sr}_2\text{CuMgFe}_{28}\text{O}_{46}$ nanocomposite using FT-IR clearly demonstrates the successful covalent attachment of magnetic nanoparticles to RGO sheets. Magnetic measurement revealed that the saturation magnetization (M_s) and coercivity (H_c) of magnetic nanoparticles were $44.3 \text{ Am}^2/\text{Kg}$ and 354.6 KA/m , respectively. As expected, the magnetic response of the nanocomposite was dramatically reduced in comparison with that in magnetic nanoparticles. Microwave absorption of the nanocomposite was evidently enhanced compared to that of pure graphite and magnetic nanoparticles.

Biography

My name is Paransa Alimard. I was born in 1981. I live in Tehran, Iran. After I finished my high school I started my education in the field of chemistry. I got my Bachelors in Applied chemistry and then I started working in a cosmetic and hygienic company named Sufin and after 6 years I got my master of science in Inorganic chemistry. I earned my PhD in Inorganic chemistry 2 years ago. My PhD thesis was about magnetic nanocomposites and the investigation of their physical and chemical properties. My interest is about synthesis of nano particles and nano composites. Now I work for Surfin Company again and I hope to attend the conference.

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