



Iron Oxide-Graphene Composites For Medical Applications

By Bhattacharya, Soumya

Condition: New. Publisher/Verlag: LAP Lambert Academic Publishing | Iron Oxide-Graphene Composites For Medical Applications | The research is significant with regards to the understanding of the physics of iron oxide (IO) nanoparticles and graphene-IO composites and their applications in medicine. The effect of nucleation and growth of Fe₃O₄/Gamma-Fe₂O₃ nanocrystals within biomolecular templates, on the magneto-structural properties and their implications in MRI contrast and heat generation in magnetic hyperthermia has been extensively studied. The research tries to address the issues relating to the uniformity in particle size, shape, distribution, and effective functionalization. By choosing different templates the mutual interaction between adjacent particles could be tuned which was found to have a profound impact on the magnetic anisotropy of such systems. Future work would concentrate on the self assembly of such systems whereby the anisotropy can or is expected to be modulated to achieve enhanced diagnostic and therapeutic value in killing cancer cells. The work follows an integrated approach and covers the entire spectrum of materials development (synthesis by mimicking nature-biomineralization), applications (MRI and magnetic hyperthermia) and simulation (bioheat model using COMSOL). | Format: Paperback | Language/Sprache: english | 192 pp.



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