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7.	Brief account of your research interests with special focus on Nano Science and Technology (strictly within 300 words):	<p>The current research focuses on the synthesis of biocompatible magnetic nanoparticles and rare earth based nanocolorants. In the absence of any surface coating, magnetic nanoparticles have hydrophobic surfaces with large surface area to volume ratio. Hydrophobic interactions result in agglomeration. Further, nanoparticles are attracted magnetically, in addition to the usual flocculation due to van der Waals force. This makes coating imperative. Our study aims at coating and conjugation of magnetic nanoparticles with polysaccharides and their possibility to construct versatile nano bio hybrid particles which simultaneously possess magnetic and biological functions for biomedical diagnostics and therapeutics. They provide strong contrast effect on surrounding tissues under MRI scans and therefore have served as important probes for MR imaging. Aligning of magnetic nanoparticles on biological materials with the aid of biocompatible materials would enable better targeting of the drugs with the aid of external magnets. The research also includes studying the ability of bio templates to serve as coating and stabilizing agents for metal oxide nanoparticles and to function as a template for the controlled synthesis of metal oxide nanoparticles of various sizes and shapes. On the colorants front, environmentally benign rare earth colorants as replacement for those based on cadmium and chromium are being developed. One of the major hurdles of the calcination route is the size of the pigment, thereby its dispersibility into formulations. An effort is being made to develop nanocolorants using sol-gel route</p>

8.	Keywords related to your research interests (maximum 10, different lines separated by commas)	Nano iron oxides Environmental benign rare earth colorants Nano colorants Magnetic properties Optical properties Drug delivery systems