Journal of Nanotechnology

Hindawi

Special Issue on

New Frontiers of Magnetic Nanoparticles for Biology and Nanomedicine

CALL FOR PAPERS

Nanomaterials are a key focus of research for wide outspread novel applications. As the size decreases to the nanoscale, the properties of materials greatly change owing to their large surface-to-volume ratio, quantum size effects, and electrodynamic interactions. In the last decades a lot of research has been carried out for the synthesis, characterization, and modellization of nanostructured materials for several applications, ranging from electronics and energy harvesting and storage to biomedical applications. Nanoparticles are considered indeed very promising in imaging and therapy because they can efficiently carry and deliver imaging probes, therapeutic agents, or biological materials to targeted specific organ, tissue, or even underlying cell. Also, some of them possess active functions that facilitate their availment in imaging/sensing or in novel therapies or in combination of imaging and therapy known as theranostics.

In particular, magnetic nanoparticles attract a great deal of attention in Biology and Nanomedicine because of their sensing, moving, and heating abilities, imparted by their unique magnetic properties. The most common applications of magnetic nanoparticles lie with their use in cell separation or as contrast agents for magnetic resonance imaging (MRI), but other applications as therapeutic agents in magnetic fluid hyperthermia (MFH), in biosensing and in cellular functionality study, are rapidly growing, passing from the earliest accomplishments principally focused only on cancer disease to new frontiers of clinical and biological applications.

In this special issue, we intend to invite front-line researchers to submit original articles on exploring the use of magnetic nanoobjects in Nanomedicine and Biology. For this purpose, the issue wants to cover the new developments in the synthesis and characterization of magnetic nanoconstructs ranging from conventional metal oxides nanoparticles to novel molecule-based or hybrid multifunctional nanoobjects on the one hand and explore their potential in imaging, therapy and theranostics, including emerging applications, such as MFH and Magnetic Particle Imaging, on the other hand.

Potential topics include but are not limited to the following:

- Synthesis and characterization of magnetic nanoparticles
- Magnetic nanoparticles and hybrid nanoparticles for drug delivery
- Iron oxide nanoparticles, Prussian blue nanomaterials, and Metal Organic Frameworks at the nanoscale for biomedical applications
- Magnetic fluid hyperthermia with nanoobjects
- Magnetic nanoparticles for Magnetic Particle Imaging
- Multifunctional nanoparticles for theranostics
- Magnetic nanoparticles as contrast agents for Magnetic Resonance Imaging

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/jnt/nfmn/.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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