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Biomedical Applications of Anisotropic Magnetic Nanoparticles

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Message from the Guest Editor

Magnetic nanoparticles have been studied for several decades for their biomedical applications. Their ability to heat up when submitted to an alternating magnetic field has been used in thermotherapy but also for on-demand drug release with thermosensitive drug delivery systems. They can also accumulate in a specific area through the application of a magnetic field gradient (magnetic targeting), while their size gives them the property of accumulating to a certain extent within tumor areas (passive targeting, EPR effect). Their nanometric size and the resulting high specific surface area allow the grafting of large quantities of biochemical entities (proteins, antibodies, etc.) onto their surface, which has led to applications in targeted therapy (active targeting) but also in in vitro diagnostics. This Special Issue focuses on the synthesis, properties, and biomedical applications of anisotropic magnetic nanoparticles that may be nanotubes, nanowires, nanorods, nanocubes, nanoflowers, nanosheets, nanoplates or anisotropic nanoparticle assembly.

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Message from the Editor-in-Chief

Nanoscience and nanotechnology are exciting fields of research and development, with wide applications to electronic, optical, and magnetic devices, biology, medicine, energy, and defense. At the heart of these fields are the synthesis, characterization, modeling, and applications of new materials with lower nanometer-scale dimensions, which we call “nanomaterials”. These materials can exhibit unusual mesoscopic properties and include nanoparticles, coatings and thin films, metal–organic frameworks, membranes, nano-alloys, quantum dots, self-assemblies, 2D materials such as graphene, and nanotubes. Our journal, *Nanomaterials*, has the goal of publishing the highest quality papers on all aspects of nanomaterial science to an interdisciplinary scientific audience. All of our articles are published with rigorous refereeing and open access.

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