Special Issue

Advanced Nanocomposite Magnets with the L10 Phase

Message from the Guest Editor

Rare-earth-free permanent magnets with the L10 phase are actively researched for their potential as a future class of magnetic materials capable of operating at higher temperatures and in challenging corrosion environments, such as for renewable energy applications. Indeed, RE-free magnets can operate under extreme conditions such as high temperatures and corrosive media, for instance in wind turbine motors subjected to strong variations in temperature and humidity. Various possible RE-free magnets have been proposed and largely investigated, including compounds derived from the binary systems FePt, MnAl, MnBi, MnGa, and others. Common to all these different systems is the fact that they all may exhibit, under certain conditions, the formation of the tetragonal L10 phase, which has been shown to present large magneto-crystalline anisotropy and high coercivity. The motivation of this Special Issue is that the research community has already begun searching for magnetic materials based on abundant elements that are less costly and easier to process without a significant degradation in the magnetic performances of current classes of rare earth magnets.

Guest Editor

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Deadline for manuscript submissions

closed (31 March 2025)

Nanomaterials

an Open Access Journal by MDPI

Impact Factor 4.3
CiteScore 9.2
Indexed in PubMed

mdpi.com/si/197670

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mdpi.com/journal/nanomaterials

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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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