

Special Issue

Advances in Metallic Glass Nanocomposites

Message from the Guest Editors

Metallic glasses (MGs), with no long-range order, have unique properties such as high strength, corrosion resistance, and soft magnetism, making them highly attractive for research since the 1960s. Recent efforts to improve MG plasticity focus on preventing shear-band propagation, with heterogeneous structures effectively enhancing plasticity by blocking localized shear bands. A key research area is improving MG's soft-magnetic properties. Traditional design relies on "trial-and-error," making it difficult to balance saturation flux density and thermal stability due to the interplay between glass formation and magnetism. Machine learning has emerged as a powerful tool to predict glass formation and optimize alloy design for advanced soft-magnetic MGs. Catalytic performance of MGs, driven by disordered structures and high Gibbs free energy, is also being explored. While catalytic activity is linked to active-site density, modifying catalytic properties through atomic structure control remains challenging. This Special Issue will explore how heterogeneous structures impact plasticity, magnetism, and catalysis, highlighting the latest MG research.

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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. We are proud of our increasing impact factor and ability to provide rapid decisions to authors.

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