Special Issue

Advanced Nanomaterials and Energetic Application: Experiment and Simulation

Message from the Guest Editors

Recent advancements in nano-metric energetic materials have revolutionized chemical propulsion systems, offering high heat release rates and tailored burning rates. These materials, including solid fuels, catalysts, metal particles, thermites, and composites, are valued for their high energy density and reactivity. Despite these benefits, achieving efficient combustion in industrial applications remains a challenge. This Special Issue compiles the latest developments in these materials for chemical propulsion, focusing on their design and application in simulations, ignition, and combustion. It covers nano-sized metal fuels, catalysts, composites, oxidizers, and thermites, with an emphasis on their use in various propulsion systems. The research aims to enhance propulsion systems and develop new ingredients for chemical propellants, explosives, and pyrotechnics. While significant progress has been made, the field still faces constraints such as safety, stability, cost, and development challenges unique to nano-EMs. We welcome submissions on experimental and simulation aspects of advanced energetic nanomaterials in chemical propulsion.

Guest Editors

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Deadline for manuscript submissions

closed (8 July 2025)

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

Editor-in-Chief

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