Special Issue

Synthesis, Chemical-Physical Properties and Applications of Quantum Dots Nanocrystals

Message from the Guest Editor

Colloidal quantum dots (QDs), semiconductor nanocrystals with dimensions on the nanometer scale, exhibit extraordinary quantum mechanics properties. They show controllable optical and electronic characteristics, finely tuned through the manipulation of their composition and crystal structure. Their unique features enable the engineering of materials with adjustable light absorption, bright emission of pure colors, and versatile tuning of chemical and physical functions. Since their discovery, QDs have garnered significant attention in academia and industry, catalyzing advancements across various technologies, including solar energy conversion, light-emitting devices, bioimaging, photocatalysis, and quantum computing. In recognition of their impact, the Nobel Prize in Chemistry 2023 was awarded for the discovery and development of QDs. We invite researchers to contribute to this Special Issue, focusing on research papers (including articles and reviews) related to the synthesis and advanced physical and chemical properties of semiconductor nanocrystals (both traditional and perovskite quantum dots) and their applications. We look forward to receiving your valuable contributions.

Guest Editor

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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.

Editor-in-Chief

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