Special Issue

Semiconductor Quantum Dots: Synthesis, Properties and Applications

Message from the Guest Editors

Semiconductor quantum dots (SQDs) are tiny nanocrystals with quantum confinement effects in all three spatial directions, showing discrete atom-like electronic structures and size-dependent energy levels. SQDs have many excellent optoelectronic properties including wide tunability, narrow emission bandwidth, high brightness, and high efficiency, and offer a wide range of potential device applications in solar energy harvesting, lighting, displays, detectors, biomedical imaging, etc. They could also be a building block for quantum information technology, generating quantum bits or serving as quantum light sources. This Special Issue aims to cover recent progress in the synthesis, properties, and applications of SQDs. Potential topics include, but are not limited to: (1) Various synthesis strategies and characterization methods of II-VI, III-V, IV-VI, and perovskite SQDs; (2) Transient and steady-state response of optical, magnetic, electronic, and catalytic properties; (3) Various applications in optoelectronics, photovoltaics, biomedicine, and quantum information processing.

Guest Editors

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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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