Special Issue

Recent Development of Semiconductor Nanocrystals

Message from the Guest Editors

Colloidal semiconductor nanocrystals, such as colloidal quantum dots (CQDs) and nanoplatelets, are promising candidates of nanoscale building blocks for solution-processed optoelectronic devices and integrated circuits. Their outstanding properties have led to quantum dots being widely used in the design of small optoelectronic, optical, and quantum devices, such as light-emitting diodes, displays, detectors, waveguides, micro-lasers, and single-photon sources. Although there are already continuous-wave pumping CQD lasers and electrical pumping optical gains from CQDs, on-chip (especially functional) CQD micro-lasers still rely heavily on excitation by short pulses. Most micro-fabrication technologies cause damage to QDs. Thus, it is incredibly important to develop novel micro-fabrication technologies which do not damage QDs and may be compatible with other materials, especially for metals and semiconductors. Efforts should focus on developing novel physical mechanisms and designing various nanostructures to shape QD emissions, such as directions, polarizations, wave fronts, emission enhancement, and patterns.

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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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