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## Study of Structure Regulation and Physical Properties of Nano-Optoelectronic Materials

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### Message from the Guest Editors

Nano-optoelectronic materials such as epitaxial 3D semiconductor quantum dots, 2D quantum wells/superlattices, and 2D monolayers are desired for information photonics and quantum photonics. To achieve suitable performances from these devices (e.g., high-speed lasers with low threshold, high working temperature and monolithic wavelength, photodetectors in high detectivity, definite biexciton–exciton photon-pair emission with small fine structure splitting, or efficient nonlinear optics on chip and fiber integrated instead of bulk material), a structure regulation of these nanomaterials is needed, e.g., adding modulated doping or tunneling barrier surrounding, controlling the nanomaterial size and orientation, using a strain-reducing layer or coupled layer for longer wavelength, using biaxial strain tuning to form light hole, controlling the flux sequence to form a sharp interface, or designing proper micro-resonator modes for nonlinear optics or integrated photonics. The structure optimization and its consequent improvement of device performance can be directly reflected in the characteristics of the material optical properties.



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## Editor-in-Chief

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## Message from the Editor-in-Chief

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