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2D Materials for Electronic and Optoelectronic Devices

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Message from the Guest Editors

Dear colleagues,

Two-dimensional (2D) materials with unique electronic and optoelectronic attributes have spurred a wide spectrum of applications with record-setting performances and interesting semiconductor physics. For instance, graphene can act as a monolayer of carbon atoms for broadband photodetectors or an on-chip waveguide-integrated optical modulator, and finds use in nonlinear optical applications. Transition-metal dichalcogenides can be used as ultrathin optical gain media for light sources and electronic transistors.

Abundant photonics and electronic physics can be also explored using these low-dimensional material platforms, including Moiré superlattices, excitons and phonon polaritons. Furthermore, 2D materials can be combined with various photonic structures, such as metasurfaces, photonic crystals, optical resonators and waveguides, for a diverse range of extended functionalities, and transformed into different types of electrical device layouts for electronic transistors, memristors and so on.



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Special Issue



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Message from the Editor-in-Chief

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