Special Issue

Processing and Applications of Novel Optical Metamaterials

Message from the Guest Editor

The design and fabrication of functional heterostructures or nanostructures serve an important role in next-generation nanotechnologies. The continuous shrinking of device size requires reliable, durable, and flexible material candidates, coupling with reproducible and cost-effective processing methods at the micro- or nanoscale. Previous studies have demonstrated enhanced anisotropy, multifunctionality, and tunability of hybrid structures by combining building blocks within the three-dimensional (3D) or two-dimensional (2D) material family, represented by hyperbolic metamaterials or metasurfaces with patterned optical resonators, thin film nanocomposites with embedded plasmonics nanostructures, as well as van der Waals heterostructures combining graphene, h-BN, and transition metal dichalcogenides (TMDs). Extending hybrid designs by coupling 3D with 2D candidates opens up more possibilities toward flexible device integration, thermal and optical sensors, and solar or optoelectronic applications.

Guest Editor

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