

Journal of Semiconductors

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A Special Issue on

“2D materials related physical properties and optoelectronic devices”

CALL FOR PAPERS

Since the first discovery of graphene in 2004, ultrathin two-dimensional (2D) materials (e.g. Xenes, MX, MX₂, nitrides, oxides and etc.) have attracted broad interest due to their unique properties that are absent in bulk counterparts. Recent advances of van der Waals (vdW) 2D materials provide a new opportunity to realize atomically sharp interfaces in the ultimate quantum limit. As a potential and promising choice of the next-generation semiconductors, 2D materials have been explored in various aspects of condensed matter physics and materials science. Also, 2D vdWheterostructures are found to critically depend on the interlayer charge transport, electron-hole recombination process mediated by tunneling across the interface. The electronic optoelectronic performances in the vdWheterostructures can be enhanced and tuned by applying gate voltages, which may provide a fundamental platform to realize novel physical phenomena and device applications.

This special issue will contain articles on emergent 2D materials (including graphene and other Xenes, BN, transition metal dichalcogenides, group-IV and group-III metal chalcogenides and etc.) and their electronic and optoelectronic physics. Topics include but not limited to:

- 1) Synthesis and large-scale growth of 2D materials
- 2) Structural, electronic, optical, magnetic and other novel properties (e.g. valleytronics, tunnel junctions, etc.) of 2D materials and their heterostructures
- 3) Novel electronic and optoelectronic devices of 2D materials and their heterostructures
- 4) Theory and modeling of 2D materials and their devices
- 5) Potential technology and application in 2D materials (e.g., integration and scalable device manufacture, transfer free device integration, display technology, etc.)

The issue attempts to provide a latest overview of the rapid developing research area of 2D materials. We sincerely hope that this issue on 2D materials can benefit researches on this topic.

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Manuscript Submission:

Manuscripts must be prepared according to Journal's guidelines, available at <http://iopscience.iop.org/journal/1674-4926>.

Submit your manuscripts via the online submission address at <https://mc03.manuscriptcentral.com/jos-iop>.

Please notify well in advance for your intention to submit a research paper.

Key timetable dates:

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