



Journal of Nanomaterials

Special Issue on
2D Nanomaterials for Energy and Flexible Devices Applications

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The global interest in portable energy sources and flexible electronic devices is increasingly growing to fulfil the requirement of future systems, ranging from hybrid electrical vehicles to point-of-care monitoring systems. The combination of highly unusual electrical, thermal, and mechanical properties makes 2D materials not only interesting for atomic-thick active components for flexible and smart electronic devices but also excellent molecular building blocks with high density of active edges and large surface area for assembly of 3D nanomaterials for harvesting and storing energy. This has stimulated a broad academic and R&D community to actively pursue intensive research for developing cost-effective, scalable, and sustainable synthesis of 2D nanomaterials, new methodologies for their coating including inkjet printing on diverse substrates, and different techniques to tune their band gaps by, for example, quantum confinement of charge carriers, introducing physical or chemical strain, creating disorder/ defects, and functionalization of surfaces.

We invite researchers to contribute their high quality original research work as well as review articles stressing recent advances and current challenges in 2D nanomaterials research for their energy and flexible devices. This special issue covers a broad range of topics from printable 2D nanomaterials to biointegrable electronic surfaces.

Potential topics include, but are not limited to:

- ▶ Novel approaches for synthesis and microanalysis of 2D materials including graphene, MoS₂, WS₂, MoO₃, SiC, and other few-layered nanomaterials
- ▶ Novel nanocomposites of 2D materials and nanoparticles
- ▶ Energy harvesting and storage including solar cells, supercapacitors, and batteries
- ▶ Hybrid 2D materials and their electronic properties
- ▶ Novel techniques for printing 2D nanomaterials on flexible substrates
- ▶ Smart electronic devices including sensor networks and displays unit
- ▶ Flexible and stretchable electronics for biointegrated devices

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Lead Guest Editor

Shailesh Kumar, CSIRO, Sydney, Australia
shailesh.kumar@csiro.au

Guest Editors

Qijin Cheng, Xiamen University, Fujian, China
qijin.cheng@xmu.edu.cn

Rakesh Kumar, Indian Institute of Technology Ropar, Punjab, India
rakesh@iitrpr.ac.in

Navneet Soin, University of Bolton, Bolton, UK
n.soin@bolton.ac.uk

Adrian Balan, Le Commissariat à l'Énergie Atomique et Aux Energies, Saclay, France
adrian.balan@cea.fr

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