Special Issue

Novel 2D Materials for Nanoelectronic Devices

Message from the Guest Editor

Two-dimensional (2D) materials are highly promising for future semiconductor electronics technology due to their unique structural, electronic, and transport properties. Since the discovery of graphene, dozens of new 2D materials have been reported experimentally and hundreds more predicted to exist by advanced ab initio theoretical calculations. The main motivation for this Special Issue is the search for 2D materials that could replace the conventional silicon–oxide–metal gate structure in future semiconductor chips. This Special Issue is devoted to providing recent cutting-edge advances in experimental and theoretical research on nanoelectronic devices based on 2D materials beyond graphene. These include but are not limited to novel monoelemental 2D materials (phosphorene, silicene, arsenene, antimonene, etc.), transition metal dichalcogenides (TMDs), alloys and compounds (e.g., alloyed black arsenic phosphorus, AsP), and their heterostructures. The focus is on electronic and transport properties and their impact on the performance of conventional, tunneling, and other implementations of field effect transistors (FETs).

Guest Editor

Prof. Dr. Mirko Poljak

Faculty of Electrical Engineering and Computing, University of Zagreb, HR-10000 Zagreb, Croatia

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Materials
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
materials@mdpi.com

mdpi.com/journal/materials

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Message from the Editor-in-Chief

Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

Editor-in-Chief

Prof. Dr. Maryam Tabrizian
1. Department of Biomedical Engineering, Faculty of Medicine and Health Sciences, McGill University, Montreal, QC H3A 2B6, Canada
2. Faculty of Dentistry and Oral Health Sciences, McGill University, 3640 Rue University, Montreal, QC H3A 0C7, Canada

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