



an Open Access Journal by MDPI

Field-Effect Transistors Based on Two-Dimensional Materials

Guest Editors:

Prof. Dr. Po-Tsun Liu

Department of Photonics,
National Yang Ming Chiao Tung
University, Hsinchu 30010,
Taiwan

Prof. Dr. Der-Hsien Lien

Department of Electrical
Engineering, National Chiao
Tung University (NCTU), Hsinchu
City 30010, Taiwan

Dr. Dun-Bao Ruan

School of Microelectronics,
Fuzhou University, Fuzhou
350002, China

Deadline for manuscript
submissions:

closed (30 June 2023)

Message from the Guest Editors

The continuous downscaling of the channel length and thickness in modern field-effect transistors (FETs) has increased the need for atomically layered materials to minimize short channel effects at extreme scaling limits. Since the first single layer of graphite (graphene) was proposed, many researchers have developed more and more novel two-dimensional (2D) nanomaterials on FET devices, such as 2D chalcogenides, monoelement 2D materials, etc. These graphene-like materials offer the advantages of sizeable and non-zero bandgap, high on/off ratio and quasi-ideal subthreshold swing, mechanical flexibility, and thermal and chemical stability. Moreover, those graphene-like materials are also extensively used in various 2D/wearable technological applications, such as optoelectronics, energy, composites, sensing, filtration, nanocoating, life science, or even medicine.

This Special Issue will present comprehensive research outlining the progress in the application of FET devices with 2D materials. We invite authors to contribute original research articles and review articles covering the current progress on 2D material-based devices.





an Open Access Journal by MDPI

Editor-in-Chief

Prof. Dr. Shirley Chiang

Department of Physics, University
of California Davis, One Shields
Avenue, Davis, CA 95616-5270,
USA

Message from the Editor-in-Chief

Nanoscience and nanotechnology are exciting fields of research and development, with wide applications to electronic, optical, and magnetic devices, biology, medicine, energy, and defense. At the heart of these fields are the synthesis, characterization, modeling, and applications of new materials with lower nanometer-scale dimensions, which we call “nanomaterials”. These materials can exhibit unusual mesoscopic properties and include nanoparticles, coatings and thin films, metal-organic frameworks, membranes, nano-alloys, quantum dots, self-assemblies, 2D materials such as graphene, and nanotubes. Our journal, *Nanomaterials*, has the goal of publishing the highest quality papers on all aspects of nanomaterial science to an interdisciplinary scientific audience. All of our articles are published with rigorous refereeing and open access.

Author Benefits

Open Access: free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility: indexed within Scopus, SCIE (Web of Science), PubMed, PMC, CAPlus / SciFinder, Inspec, and other databases.

Journal Rank: JCR - Q2 (*Chemistry, Multidisciplinary*) / CiteScore - Q1 (General Chemical Engineering)

Contact Us

Nanomaterials Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
www.mdpi.com

mdpi.com/journal/nanomaterials
nanomaterials@mdpi.com
[X@nano_mdpi](https://x.com/nano_mdpi)