Special Issue

MXene-Based Nanomaterials for Smart Wearable Textiles and Sensing Applications

Message from the Guest Editor

Wearable electronics are rapidly advancing for applications in health monitoring, human–machine interfaces, and smart sensing systems. Textile-based electronic platforms offer unique advantages such as flexibility, breathability, and compatibility with daily wear. Among emerging nanomaterials, MXenes have attracted significant attention due to their high electrical conductivity, hydrophilicity, mechanical flexibility, and tunable surface chemistry. These properties enable MXenes to be effectively integrated into fibers, yarns, and fabrics for high-performance wearable sensing devices. This Special Issue aims to present the recent advances in smart MXene-based textiles for wearable sensing electronics. Topics include MXene synthesis and functionalization, conductive textile architectures, flexible and stretchable sensors, biosensing systems, multifunctional e-textiles, energy storage and harvesting devices, scalable fabrication methods, and durability of MXene-enabled wearable systems.

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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. We are proud of our increasing impact factor and ability to provide rapid decisions to authors.

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