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Graphene-Like Nanomaterials: Simulation, Preparation, Characterization and Applications

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Message from the Guest Editors

Dear Colleagues,

Graphene is a single carbon layer of graphite, which (according to the IUPAC terminology) can be described by analogy to a polycyclic aromatic hydrocarbon of quasi-infinite size. Graphene-like phases functionally originate from a perfect graphene sheet, and its complete oxidation with oxygen leads to the formation of graphene oxide, partial oxidation to the formation of rGO, and the introduction of structural defects (vacancies, the functionalization of the graphene surface with oxygen-containing carbon radicals, and similar). In each of these cases, a change in the hybridization of a part of the carbon atoms from sp^2 to sp^3 is observed. The size of the graphene-like particles varies depending on the synthesis methods used. Parallel to the increase in the content of oxygen in the graphene-like nanoparticles, their properties also change.

The focus of the Special Issue will be as follows:

- Simulations of the modification/functionalization of different carbon phases to graphene-like nanoparticles;
- Synthesis of graphene-like phases;
- Various aspects of the application of graphene-like phases;

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Editor-in-Chief

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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.

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