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Block Copolymer Nano-Objects

Guest Editor:

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Deadline for manuscript submissions:
closed (31 December 2020)

Message from the Guest Editor

The scope of possible applications for block copolymers is rapidly expanding, with multidisciplinary contributions involving the fields of chemistry, physics, and materials science, as well as biological and medical sciences. The self-assembly of block copolymers (BCPs) can lead to various nanoscopic structures of dimensions ranging from 10–100 nm depending on the composition and chain architecture in bulk and thin-film form. A detailed scientific and technical understanding is essential for self-assembly or microphase separation of block-copolymers, describing the thermodynamics of the process, the type of structures formed, the formation of regular thin films, and how the structures might be directed to define precise microdomain location, orientation and alignment, and the elimination of various defects during the process. These properties enable BCPs to be used as a general route for patterning a variety of materials into periodic structures. This issue will be focussed on experimental and theoretical aspects of the processing steps to fabricate different nanostructures using BCPs, studying their properties and applications.

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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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