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Nanoscale Thermodynamics

Guest Editor:

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Deadline for manuscript submissions:
closed (31 December 2020)

Message from the Guest Editor

Dear Colleague,

This Special Issue focusses on the theory of energy conversion on the nanoscale with the aim of addressing the following questions and aspects related to them: How far down in scale can we really use classical Gibbs thermodynamics? Which theory can be used beyond the limit where classical thermodynamics ceases to apply? It is known that confinement changes the equation of the state of a fluid, but does confinement also change the equilibrium condition itself? How do we formulate the equilibrium conditions on the nanoscale?

This Special Issue aims to have a fresh look at why this is so through a review of what has happened since Hill's method became available and by seeking to (re-)define new lines of research using this platform or choosing another platform. We invite authors to submit papers that can contribute to the advancement of nanothermodynamics using theoretical, computational, or experimental tools. The focus is on efforts that support or validate theoretical developments on the nanoscale, the scale of molecular clusters, where surface energies dominate.

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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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