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Protein Nanomechanics

Guest Editor:

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Message from the Guest Editor

Proteins are fascinating, complex biomacromolecules that are involved in nearly every process in the cell. For the effective performance of their in vivo function, the nanomechanical properties of proteins need to be balanced between conflicting demands: on the one hand, the mechanical integrity of a protein is often a prerequisite for a function, e.g., protein–biomolecule interactions, the maintenance of cell morphology, and enzyme catalysis; on the other hand, a very high mechanical stability interferes with the conformational dynamics of proteins, and high protein rigidity can affect downstream processes such as degradation and turnover control. Apart from their importance for the cell, the applied research scientists have started to examine how to design synthetic biomaterials with tailor-made mechanical properties, which can function as, for example, biological tissue surrogates. The purpose of the Special Issue is to gain new fundamental knowledge on proteins to reveal their balanced nanomechanics and potential applications in material science.

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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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