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Vibrational Properties of Nanocrystals

Guest Editor:

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closed (20 April 2019)

Message from the Guest Editor

Dear Colleagues,

Vibrational dynamics are of direct interest in the study of the thermal properties of materials, and also condition structural stability, phase transformations and transport phenomena. All of this is made even more relevant in nanostructured materials, for the effects of phonon confinement and surface atomic coordination. The finite size increases the weight of the inner atomic coordination shells on the materials properties, as atomic vibrations of neighboring atoms tend to be more correlated than more distant atoms, but also amplifies the effect of the static disorder due to the large fraction of atomic bonds in the free surface or in the grain boundary regions. These regions are also responsible for the peculiarity of surface plasmonic effects, rich of interest and promising applications.

We invite to propose contributions on the general theme of vibrational dynamics in nanocrystalline systems, whether they are constituted by isolated nanocrystals or polycrystalline aggregates, studied by experimental, theoretical, or numerical simulation methods.

Keywords: Vibrational dynamics; Nanocrystalline materials; Atomistic simulations; Static and dynamic disorder

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

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