



## Vibrational Properties of Nanocrystals

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### 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

