Special Issue

Fundamental Studies of the Electronic, Thermal and Optical Response of Metal Nanostructures

Message from the Guest Editors

To date, there are only a few attempts to provide a comprehensive description of the combined optical, electronic, and thermal responses. For example, almost all the detailed studies of the electron non-equilibrium distribution due to optical illumination have ignored the possibility of metal heating up; on the other hand, extensive and useful studies on heating by metal nanostructures (the so-called field of thermo-plasmonics) have ignored the non-equilibrium electron distribution created at the same time. This partial description is particularly problematic when characterizing the nonlinear optical response of metals, since thermal and non-thermal effects are hard to separate, both theoretically and experimentally. Similarly, these effects are easy to mix up in the context of microscopic fully quantum mechanical calculations.

The goal of this Special Edition is to promote studies that simultaneously address the optical, electronic, and thermal response of metal nanostructures, using recent progress in theory, on one hand, and advanced spectroscopic techniques on the other hand.

Guest Editors

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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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