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Hybrid Nanostructured Composites for Environmental and Bio-Sensing Application

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Message from the Guest Editor

This Special Issue aims to highlight the highly interdisciplinary character of the selective sensing of (bio)molecules (e.g., pollutants and biomarkers), heavy metals, and ions as well as inorganic nanoparticles and micro/nanoplastics in environmental and biological matrices using multifunctional hybrid nanostructured composites. These hybrid composites (e.g., hybrid magnetic, organic-metal composites, etc.) enable the combination and enhance the specific properties of each component for sensing applications. This major research area involves chemistry, biology, engineering, and material science.

This Special Issue is focused on hybrid composites in which one of the components is a noble metal nanoparticle, especially gold and silver, which exhibit unique and tunable plasmonic properties as a function of their size, shape, and dielectric layer. This allows for their utilization as sensors based on colorimetric assays, surface-enhanced vibrational spectroscopies (e.g., SEF, SERS, SERRS), and Rayleigh scattering spectroscopies (e.g., dark-field), among others.



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Special Issue



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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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