



## Layered Double Hydroxide-Based Nanomaterials – From Fundamentals to Applications

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### **Message from the Guest Editor**

In the past decades, layered double hydroxides (LDHs) and their derivatives became one of the most important inorganic nanomaterials due to their biocompatibility, compositional diversity and possible delamination into two-dimensional unilamellar nanosheets. They are multifunctional materials, applications include sensing, catalysis, biomedical delivery, water treatment and development of novel hybrid nanocomposites. Due to the widespread contemporary interest in LDH-based materials in the scientific and technological communities, major efforts are being made on investigating the fundamental properties of these materials in order to optimize their use in more applied disciplines. The aim of this Special Issue is to present the most recent results concerning the synthesis, characterization and application of LDH-based nanomaterials. The targeted topics involve, but are not limited to, the following: Synthesis and Fundamental properties of LDHs ; Novel methodologies to study the structure of LDH materials; Colloid chemistry of LDHs; Development of polymer-LDH nanocomposites; Preparation of LDH hybrids; Design of LDH-based bionanomaterials and and Application of LDHs.





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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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