Special Issue

Advancements in Antimicrobial Nanomaterials: From Characterization to Practical Applications

Message from the Guest Editor

The global rise in antimicrobial resistance has intensified the search for innovative solutions that can control and prevent infections across clinical, industrial, and environmental settings. In this context, nanotechnology has emerged as a powerful tool, offering novel antimicrobial materials with enhanced efficacy, targeted delivery, and unique physicochemical properties. This Special Issue of the *Journal of Applied Sciences* is dedicated to showcasing recent advancements in the design, synthesis, characterization, and application of antimicrobial nanomaterials. We welcome original research articles, reviews, and short communications that explore a wide range of nanomaterials, including but not limited to metallic and metal oxide nanoparticles, polymeric nanocomposites, carbon-based nanostructures, hybrid systems, and functionalized nanocarriers. Topics of interest include:

- Novel strategies for Antimicrobial nanomaterial synthesis and functionalization;
- Mechanisms of antimicrobial action at the nanoscale;
- Toxicological and biocompatibility assessments of antimicrobial nanoparticles;

Guest Editor

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Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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