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Technology and Applications of Nanoporous Alumina

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Message from the Guest Editors

Dear Colleagues,

Nanoporous anodic alumina (NAA) is a material with an outstanding set of properties (e.g., well-defined cylindrical nanopores, chemical resistance, thermal stability, mechanical robustness, photoluminescence, large surface area, easy surface modification, etc.) and cost-competitive fabrication processes. NAA is a matrix of aluminium oxide featuring arrays of cylindrical nanopores organized in a quasi-hexagonal arrangement with diameters that can be tuned from few nm up to 400 nm. In addition, NAA-based nanostructures can be used as versatile templates for developing new nanostructures with new performances. Thus, the development of new nanostructures and applications using NAA is of great scientific and technological interest.

This Special Issue will present recent advances in NAA fabrication and their application to different research fields: Nanomedicine, energy, sensors, catalysis, photonics, nanofluidics, magnetism, biotechnology, etc. The broad and interdisciplinary applicability of nanoporous anodic alumina is of interest for a broad audience: Physicists, chemists, bioengineers, materials scientists, and nanomedicine experts.

Keywords: Nanoporous alumina; Electrochemical etching; Porous nanoparticles; Template-assisted nanostructuring; Surface functionalization; Nanomedicine; Sensors; Drug delivery; Photonic crystals; Cell culture



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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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