Special Issue

Preparation, Characteristics and Application of Polyurethanes

Message from the Guest Editors

This Special Issue delves into innovations in polyurethanes, from molecular design to engineering applications, with a focus on microphase separation mechanisms, functional modification, and sustainability enhancement strategies. We welcome original contributions on the performance optimization of PU in damping, self-healing, and wearable technologies, as well as machine-learning-driven efficient material development and recyclable system design. By combining experimental, simulation, and data science approaches, this Special Issue seeks to establish a platform for researchers, engineers, and industries to advance the boundaries of PU applications in smart materials and green technologies. Original research, reviews, case studies, and forward-looking perspectives are invited on topics including, but not limited to, the following:

- **Advanced Preparation and Green Synthesis of Polyurethanes**
- **Innovative Applications of Functional Polyurethanes**
- **Multiscale Characterization and Simulation Technologies**
- **Circular Economy and Sustainability**

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Message from the Editor-in-Chief

Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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