Special Issue

Innovative Approaches in Asphalt Binder Modification and Performance

Message from the Guest Editors

Asphalt binders are essential to the performance and longevity of road pavements, yet traditional binders face challenges such as aging, temperature fluctuations, and increasing traffic loads. To overcome these limitations, innovative approaches in binder modification, using polymers, nanomaterials, and bio-based additives, have emerged, significantly improving the mechanical and rheological properties of asphalt. In parallel, sustainable practices in binder modification are gaining attention. Researchers are exploring the use of recycled materials and environmentally friendly additives to reduce the ecological impact of pavement construction without compromising performance. This Special Issue invites original research and reviews on innovative approaches in asphalt binder modification and performance, including the following topics:

- Novel modifiers for asphalt binders;
- Advanced technologies in binder modification;
- Performance evaluation and testing methods;
- Durability and aging studies;
- Sustainable approaches in binder modification.

We look forward to your valuable contributions to advance pavement engineering and infrastructure sustainability.

Guest Editors

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Message from the Editorial Board

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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