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Multi-Scale Modelling and Characterization of Asphalt Pavement Materials

Guest Editors:

Prof. Dr. Pengfei Liu
Institute of Highway Engineering, RWTH Aachen University, 52074 Aachen, Germany

Dr. Jing Hu
School of Transportation, Southeast University, No.2 Sipailou, Nanjing 210096, China

Deadline for manuscript submissions:
closed (20 October 2023)

Message from the Guest Editors

In recent years, scholars have used advanced nano- and micro-scale testing technology, molecular dynamics, meso-mechanics, numerical simulation methods, and other multi-scale research methods to conduct valuable discussions on the properties of asphalt pavement materials, which forms the foundation for accurate characterisation and prediction of the performance of asphalt pavement materials.

This Special Issue will provide an opportunity to highlight recent developments in the multi-scale modelling and characterisation of asphalt pavement materials, covering topics such as:

Innovative multiscale characterisation methods.

Innovative image processing and multiscale model reconstruction.

Novel, sustainable, multifunctional high-performance building materials.

Bridging scale methods.

Combined FEM and DEM Approach for multiphase behaviour of pavement materials.

Numerical modelling of multifunctional pavement materials.

Molecular dynamics modelling.

Multiphysics simulation of pavement materials.

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Special Issue

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Editor-in-Chief

Prof. Dr. David Arditi
Construction Engineering and Management Program, Department of Civil, Architectural, and Environmental Engineering, Illinois Institute of Technology, 3201 South Dearborn Street, Chicago, IL 60616, USA

Message from the Editor-in-Chief

Current urban environments are home to multi-modal transit systems, extensive energy grids, a building stock, and integrated services. Sprawling neighborhoods are composed of buildings that accommodate living and working quarters. However, it is expected that the cities and communities of the future will face complex and enormous challenges, including maintenance, interconnectivity, resilience, energy efficiency, and sustainability issues, to name but a few. A smart city uses advanced technologies and a digital infrastructure to improve the outcomes in every aspect of a city's operations. A smart building optimizes the experience of occupants, staff, and management by using a modern and connected environment. Innovations in technology that can bring dramatic improvements to design, planning, and policy are critical in developing the cities and buildings of the future.

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Buildings Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

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