Editor's Corner

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Mechanics of Asphalt: Microstructure and Micromechanics

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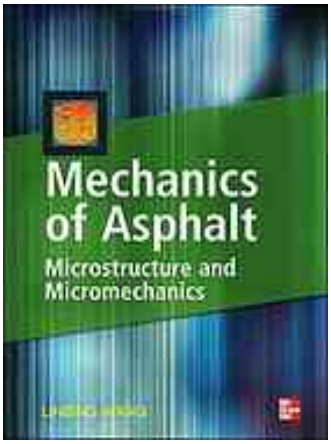

This book, titled "Mechanics of Asphalt: Microstructure and Micromechanics," is authored by Professor Linbing Wang and published by McGraw-Hill, 2010 (ISBN: 0071498540). Mechanics of Asphalt systematically covers both the fundamentals and most recent developments in applying rational mechanics, microstructure characterization methods, and numerical tools to understand the behavior of asphalt concrete (AC). The book describes the essential mathematics, mechanics, and numerical techniques required for comprehending advanced modeling and simulation of asphalt materials and asphalt pavements. Filled with detailed illustrations, this volume provides rational mechanisms to guide the development of best practices in mix design, construction methods, and performance evaluation of asphalt concrete. Mechanics of Asphalt covers:

Fundamentals for mathematics and continuum mechanics
Mechanical properties of constituents, including binder, aggregates, mastics, and mixtures
Microstructure characterization
Experimental methods to characterize the heterogeneous strain field
Mixture theory and micromechanics applications
Fundamentals of phenomenological models
Multiscale modeling and moisture damage
Models for asphalt concrete, including viscoplasticity, viscoplasticity with damage, disturbed state mechanics model, and fatigue failure criteria
Finite element method, boundary element method, and discrete element method
Digital specimen and digital test-integration of microstructure and simulation
Simulation of asphalt compaction
Characterization and modeling of anisotropic properties of asphalt concrete