

Journal of Testing and Evaluation

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Overview

Special Section on Applied Fracture Mechanics of Asphalt Materials

Over the last two decades, in a constant pursuit of seeking knowledge and advancing the technology in the areas of pavement engineering, the community has seen some radical but progressive changes on multiple fronts. In this direction, one of the most imminent activities was adoption of fracture mechanics in pavement applications. Globally, researchers and practitioners have been successful in understanding and implementing the fracture-fatigue characterization of several asphalt mixtures through various technical forums. However, a focused forum that encourages collection of new developments and breakthrough in the aforesaid areas was crucial to be released to keep up the momentum of cutting-edge research.

Thus, the key element of this special section was to assemble high-quality research articles that have explored the ideas of established material characterization methods that could potentially harness future developments in pavement applications. One of the major accomplishments of this special section was to identify and select papers/case studies related to the recent advancements in pavement design and performance evaluation, with emphasis on applied research in fracture mechanics of asphalt materials.

This special section welcomed more than thirty abstracts from various regions of the world that culminated with the acceptance of eight papers for publication. The list of accepted manuscripts encompassed a wide range of topics on the application of fracture mechanics in pavement application, utilization of finite element modeling for fracture evaluation, performance assessment of materials using advanced test techniques, statistical overview on fracture characteristics, and fatigue-fracture behavior of recycled asphalt pavements. It is noteworthy that the special section presents technical articles and case studies, which have utilized the recently developed state-of-the-art technologies vetted by the pavement community in many international forums and societies, including ASTM International.

Through this endeavor, we acknowledge the effort of expert reviewers for meticulously screening the papers, and providing suggestions during several rounds of manuscript scrutiny, which contributed to achieving very high-quality articles. The enthusiasm and untiring effort of the authors in shaping and restructuring the papers is definitely worthy of appreciation. We strongly believe that this special section is a good start to bring together the pavement community that has recognized the application of fracture mechanics in a rather complex product: asphalt material. In addition, we trust that the various application threads of fracture mechanics presented in the articles with underlying theoretical principles will get due recognition and credit in the development of new standard test protocols at many international platforms. We are very pleased to mention the advice offered by Dr. M. R. Mitchell (Editor-in-Chief, *Journal of Testing and Evaluation*), who recommended us to initiate the special topics in one of oldest journals of the world: ASTM International's *Journal of Testing and Evaluation*. Finally, special thanks to

Alyssa Conaway for her patience, hard work, and timely coordination through the last several months that have made this special section successful.

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