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Editorial

Special Issue: Proceedings of the Century Fracture Mechanics Summit

This proceedings collects selected articles based on presentations at the Century Fracture Mechanics Summit (CFMS), which was held in Singapore from Apr. 8–10, 2019. Since Griffith's landmark work of 100 years ago, the field of fracture mechanics has undergone considerable evolution and transformation and now plays an important role in addressing key 21st century issues of energy, safety and security, and healthcare. The Century Fracture Mechanics Summit provided an opportunity to review what has been achieved in fracture mechanics over the past century and to explore future prospects and directions for fracture mechanics research and applications. The Summit had about 60 participants representing three generations of leading fracture researchers. On the last day of the Summit, the 80th birthday of one of the giants of the 20th-century fracture mechanics, Professor John Hutchinson, was celebrated. Professor Hutchinson's seminal contributions to fracture mechanics, particularly to nonlinear fracture mechanics, to interface fracture mechanics, and to the understanding of the size-dependent plastic deformation mechanisms play an important role in microscale fracture processes. Professor Hutchinson's work forms the basis of many of the research developments of modern fracture mechanics that were presented and discussed at the Summit as well as having had a major impact on the development of fracture mechanics as an applied engineering tool.

Dr. Raj Thampuran, Professor Choon Fong Shih, and Professor Subra Suresh served as Honorary Chairs of the Summit, Professor Alan Needleman and Professor Yonggang Huang were the Summit Chairs, while Professor Yong-Wei Zhang was the Chair of the Summit Local Organizing Committee. We express our gratitude to all members of the Summit Local Organizing Committee (Dr. Zachary H. Aitken, Dr. Shuai Chen, Dr. Yuan Cheng, Dr. Jun Liu, Dr. Ping Liu, Dr. Zhigang Liu, Dr. Jingjie Yeo, and Ms. Sally Siew) for making the Summit such a special event. We are also very grateful to the Summit Honorary Chairs for their creative contributions to the organization of the Summit and for their unwavering support. The sponsorship of the Singapore Agency for Science, Technology and Research (A*STAR), the National University of Singapore, and the Nanyang Technological University, as well as the support of the American Society of Mechanical Engineers are gratefully acknowledged. The success of the Summit was due to the participants for sharing their ideas and insights in a dynamic and collegial atmosphere. We hope that the articles included provide an indication of the vitality of the field of fracture mechanics and serve as a basis for its continued development, both in research and in applications, in the 21st century.

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