Preface

This volume contains papers selected from more than 200 contributions presented during the 8th International Conference "Materials Structure & Micromechanics of Fracture (MSMF8)", Brno, Czech Republic, June 27-29, 2016.

The first conference of the MSMF series was held in Brno, June 1995. The participants decided to repeat such conferences in Brno each three years. The basic idea was to establish a periodical international forum for multiscale approaches in fatigue and fracture of materials in the middle of Europe. Therefore, respective sections focused on atomistic models, models based on crystal defects, numerical and statistical continuum models, advanced experimental methods and relationships between microstructure and mechanical properties appeared during the MSMF2 conference in 1998. The power of atomistic and mesoscopic approaches in fracture and fatigue was then clearly demonstrated by participants at the next MSMF meetings in 2001, 2004, 2007, 2010 and 2013. It should be emphasized that many world leading experts in the field of fracture and fatigue attended the MSMF conferences as plenary speakers.

The conference MSMF8 has successfully carried on the tradition of previous conferences. Nearly 210 scientists from 29 countries all over the world presented a variety of fundamental relations between structural and mechanical characteristics of materials. An integral part of this conference was the 3rd International Symposium on Atomistic Modeling for Mechanics and Multiphysics of Materials (ISAM^4) and the 11th workshop of the ESIS Technical Committee on Micromechanisms (TC2).

In this volume devoted to MSMF8 as many as 145 papers based on atomistic, mesoscopic, macroscopic and multiscale approaches were included after a peer-review procedure. I would like to thank all colleagues who have devoted much time and effort to organize this meeting and the members of the International Advisory Board for their support that were essential to the success of the conference. The success of the conference is, of course, mainly determined by the level and motivation of its participants, so I would like to thank all participants for their presence and for their contributing to a friendly atmosphere during this event. My thanks go to all session chairpersons, who successfully guided the program, as well as to reviewers whose thoroughness helped many authors to improved the quality of their manuscripts. It is also my pleasure to thank the editorial board of the journal Solid State Phenomena for the readiness to publish this volume.

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Pavel Šandera,
Editor