

PREFACE

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This is the 47th volume of *Advances in Applied Mechanics*. I would like to sincerely thank all authors of Volume 47 for their dedicated work which made this issue possible. Over its four chapters, this book deals with various dissipative phenomena in materials. These phenomena are approached from a theoretical, numerical and experimental angle and address issues including contact and nano-indentation, multi-scale modeling of dissipative processes, damage, plasticity and multi-field modeling/simulation of fracture.

Not only do these problems offer a wide and rich field for theoretical and experimental investigations, but, they are also central to the design of more durable, sustainable and energy-efficient structures, materials and engineering processes. Dissipative mechanisms are also critical to the accurate and robust characterization of micro and nano-structured materials.

Because of their fundamental and practical importance, fracture, damage and plasticity will be revisited in future volumes, in particular within a multi-scale and multi-field context and both from a modeling and a discretization viewpoint. In particular, we expect to place emphasis on the interplay between experimental, theoretical and computational mechanics to better understand and control these phenomena, both in the natural and the engineered environment.

Last, but not least, I am happy to announce that Daniel Balint, currently at Imperial College London, accepted to accompany me on this journey and will join me as Editor from Volume 48 onwards. I would like to thank Daniel for accepting to share this responsibility with me and look forward to the upcoming volumes.