

# Preface

During the last decades, the theory of damage mechanics has made significant progress and established itself capable of solving a wide range of engineering problems. To date, the damage mechanics is clearly identified as a scientific field focused on studying the effect of various nano, micro and macro defects on the behaviour of materials, bridging the gap between the well-established fields of continuum inelastic deformations and the classical fracture mechanics with growing macroscopic cracks. The main objective of the conferences series entitled the  $n$ th **International Conference on Damage Mechanics** (ICDM $_n$ ) is to bring together leading educators, researchers, scientists, engineers and other practitioners discussing and exchanging ideas on recent advances in the field of damage mechanics. On the foundation of the **International Journal of Damage Mechanics** (IJDM), this conferences series, held every three years, aims to become the premier international forum on damage mechanics research dissemination.

**This Second edition of the International Conference on Damage Mechanics (ICDM $_2$ )** held in University of Technology of Troyes (UTT) in France from July 8<sup>th</sup> to 11<sup>th</sup> 2015, takes place after the first edition **ICDM $_1$**  in Belgrade from June 25<sup>th</sup> to 27<sup>th</sup> 2012. It provides a forum for scientists and practicing engineers alike to present the latest findings in their research endeavour and at the same time to explore future research directions in the field of damage and failure mechanics. Both the irreversible damages and the reversible damages due to self-healing are concerned.

About 160 communications have been submitted to ICDM $_2$  from 25 worldwide countries, with 67 full papers and 93 abstracts. Finally, 133 oral presentations are programmed during the three scientific days of the conference including 66 full papers and 67 abstracts. In this book, are presented the 66 full papers accepted for publications in the ICDM $_2$  proceedings. These are grouped in three main chapters:

- Chapter 1: Theoretical Modeling in Damage Mechanics with 24 papers;
- Chapter 2: Numerical Simulations in Damage Mechanics with 20 papers;
- Chapter 3: Applied Decisions in Damage Mechanics with 21 papers.

We leave to the reader the care to browse all of the 66 papers to make his own opinion and we limit ourselves to presenting our sincere thanks to all the authors who contributed to the success of ICDM $_2$  by submitting a full paper or simply an abstract. Our thanks are due to public and private sponsors who, through their financial support, helped significantly the organization of this event: Région Champagne-Ardenne, Conseil Général de l'Aube, Grand Troyes, l'Association Française de Mécanique (AFM) and MECAMAT. Also, many thanks are due to Université de Technologie de Troyes (UTT) and to all our colleagues from the LASMIS/UTT team for supporting the practical organization.

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