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# Structures Under Shock and Impact X

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## Preface

This book contains the papers presented at the tenth International Conference on Structures under Shock and Impact held in The Algarve, Portugal, May 2008. The earlier meetings were held in Cambridge, Massachusetts, USA in 1989, Portsmouth, UK in 1992, Madrid, Spain in 1994, Udine, Italy in 1996, Thessaloniki, Greece in 1998, Cambridge, UK in 2000, Montreal, Canada in 2002, Crete, Greece in 2004 and at the Wessex Institute of Technology, UK in 2006. It was the objective of these meetings to bring together engineers and scientists from a wide-range of academic and industrial backgrounds who have an interest in the shock and impact response of structures and materials. In this way, the major developments in different areas can be brought to the attention of the entire community, thereby ensuring that industries benefit from the latest advances.

The shock and impact behaviour of structures is a challenging area, not only because of the obvious time-dependent aspects, but also because of the difficulties in specifying the external dynamic loading characteristics for structural designs and hazard assessments and in obtaining the dynamic properties of materials. Thus, it is important to recognise and utilise fully the contributions and understanding emerging from theoretical, numerical and experimental studies on structures, as well as investigations into the material properties under dynamic loading conditions.

The papers presented in this volume reflect the broad range of practical interest in the shock and impact response of structures. The topics include various aspects of protection, such as the protection of buildings from explosive loadings and the protection of passengers in cars through structural energy absorbing systems. Other articles examine the response of concrete, composite and metal structures under a variety of impact and blast loadings. Individual papers focus on seismic loadings, missile penetration, energy absorbing systems, structural crashworthiness and other important industrial problems, some of which are studied using numerical schemes. Several papers have examined the dynamic properties of materials.

It is clear from the collection of papers in this volume that the shock and impact behaviour of structures is an active field and that the range of topics is ever

expanding when viewed from the perspective of the ten conferences. This situation bodes well for the future growth of the subject, particularly since 9/11 which brought about increased concern for protecting public buildings, nuclear plant and other important sites. In addition, there is a continuing interest in the influence of shock and impact loadings on the quest for optimised systems and the resistance of new materials. It is hoped that the contents of this book will encourage and motivate many research workers and designers to apply the methods presented to new practical problems and to contribute, in due course, to our better understanding of the shock and impact behaviour of structures to the benefit of the worldwide community.

The Editors are grateful to the members of the International Scientific Advisory Committee and other colleagues who have helped to review the papers included in this volume, as well to all the authors for their contributions.

The Editors  
The Algarve, 2008

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