

# Preface

The use of composite materials and sandwich construction in modern structures is increasingly rapidly. These structures are often required to operate in severe environments which include highly dynamic loading, requiring us to establish a better understanding of the dynamic response and failure of composite materials and composite and sandwich structures. This book is the result of a multi-year effort starting with the organization of the “Recent Advances in Dynamic Failures of Composite and Sandwich Structures” workshop held June 24–25, 2011, in Toulouse, France and organized by the Institut Clément Ader. Twenty experts from seven different countries were invited to present comprehensive view of a topic of their choice and submit extended abstract that were available at that meeting. Participation in that workshop struck a balance between academia and industry. Presenters were invited to extend their work to present a comprehensive overview of their chosen topic to be published in a book. After a lengthy process, this book became a reality and its 14 chapters each deal with a particular aspect of the general topic of dynamic failure of composite materials and sandwich structures.

The contents can be grouped into several categories according to the applications: marine structures, aerospace structures, transportation. The first five chapters deal with issues of concern for marine structures: hull slamming, underwater and in-air explosions and low velocity impacts. The next seven chapters deal with impacts on composite and sandwich structures in aeronautical applications. The last two chapters deal with the behavior of composite structures in vehicles subjected to crash.

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