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| Titolo                  | Blast Mitigation Strategies in Marine Composite and Sandwich Structures [[electronic resource] /] / edited by Srinivasan Gopalakrishnan, Yapa Rajapakse   |
| Pubbl/distr/stampa      | Singapore : , : Springer Singapore : , : Imprint : Springer, , 2018   |
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| Descrizione fisica      | 1 online resource (XIV, 470 p. 268 illus., 196 illus. in color.)  |
| Collana                 | Springer Transactions in Civil and Environmental Engineering, , 2363-7633   |
| Disciplina              | 620.1   |
| Soggetti                | Mechanics<br>Mechanics, Applied<br>Ocean engineering<br>Building construction<br>Solid Mechanics<br>Offshore Engineering<br>Solid Construction  |
| Lingua di pubblicazione | Inglese   |
| Formato                 | Materiale a stampa  |
| Livello bibliografico   | Monografia  |
| Nota di bibliografia    | Includes bibliographical references at the end of each chapters and index.  |
| Nota di contenuto       | Shock Wave Propagation in Cementitious Materials at Micro/Meso Scales -- The Role of Metal Foams in Blast Mitigation and Related Trauma Reduction -- Novel Architectures and Coatings in Composite Materials for the Mitigation of Air and Underwater Shock Loadings -- Damage in Carbon Fiber Based Marine Composites Under Impact/Blast Loading and the Concept of Tuned Microstructure with Additive Manufacturing -- Modeling and Microstructure Design of Dissipative Elastic Metamaterials for Blast Wave Mitigation -- Response of Polyurea Coated Composite Plates Subjected to Underwater Explosive Loading: Experimental and Computational -- Shock Interactions with Structures and Their Associated Induced Flows -- Blast Mitigation Effects of Foam-Core, Composite Sandwich Structures -- Blast Response of Marine Composites -- Explosion Induced Shock Waves through a Medium and Structural Response -- Enhancing Interlaminar Damage |

Resistance in Woven Composites. Material Chemistry Level Modeling in Cementitious Materials -- Blast Mitigation through Techniques to steer the Blast Wave by Designing Metamaterials -- Underwater Explosions: Blast Resistance of Marine Structures -- Blast Mitigation: Materials, Testing and Challenges -- Fracture Initiation and Propagation in Marine Polymers subjected to High Strain Rate Impact -- Scaling of the Dynamic Response and Failure Mechanisms of Adaptive Composite Marine Propulsors -- An Overview of the IISc Blast Tube Research Activities -- Damage Initiation and Propagation in Blast Loaded Sandwich Structures considering Material and Geometric Nonlinearities -- Stress triaxiality in damage models for simulation of impact dynamic response -- Blast Deformation and Damage to Composite Laminates.

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Sommario/riassunto

This book primarily focuses on methodologies to enable marine structures to resist high velocity impact loadings. It is based on invited talks presented at the recent India–USA workshop on “Recent Advances in Blast Mitigation Strategies in Civil and Marine Composite Structures” The book comprises content from top researchers from India and the USA and covers various aspects of the topic, including modeling and simulation, design aspects, experimentation and various challenges. These failure modes significantly reduce the structural integrity of the marine structures unless they are designed to resist such harsh loadings. Understanding the mechanics of these structures under harsh loadings is still an open area of research, and the behavior of these structures is not fully understood. The book highlights efforts to reduce the effects of blast loadings on marine composite structures. Intended for researchers/scientists and practicing engineers, the book focuses not only the design and analysis challenges of marine composite structures under such harsh loading conditions, but also provides new design guidelines.

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