
Contents

Preface.....	ix
Acknowledgments.....	x
About the Editors.....	xi
Contributors.....	xii
Introduction.....	xv
Chapter 1 Strain Rate Studies on Metallic and Non-Metallic Materials for Tensile and Compressive Behaviour Under Impact Loading: A Review	1
<i>Navya Gara, R. Jayaganthan and R. Velmurugan</i>	
Chapter 2 Mechanical Properties of 3D Printed Materials at High Strain Rates.....	20
<i>Mayand Malik and Prateek Saxena</i>	
Chapter 3 Strain Rate Studies of Polymer and Fibre-Reinforced Polymer Nanocomposites.....	37
<i>S. Gurusideswar, Dong Ruan and R. Velmurugan</i>	
Chapter 4 High Strain Rate Testing Using Drop Mass Tower and Non-Contact Strain Measurement Techniques.....	44
<i>S. Gurusideswar and R. Velmurugan</i>	
Chapter 5 Effect of High Strain Rate on the Tensile Behaviour of 3D Printed ABS Polymer...	60
<i>I. Mahapatra, Dong Ruan, R. Velmurugan and R. Jayaganthan</i>	
Chapter 6 Effects of Different Strain Rates on the Tensile Properties of Bi-Directional Glass/Epoxy, Carbon/Epoxy and Interply Hybrid Composites Using DIC	71
<i>K. Naresh, K. Shankar and R. Velmurugan</i>	
Chapter 7 Rate-Dependent Cohesive Zone Modelling for Polyurea–Steel Interface.....	93
<i>M. K. Saravanan, A. V. S. Siva Prasad and Raguraman Munusamy</i>	
Chapter 8 A Study on the Dynamic Behaviour of Multilayered Aluminium Alloy A5083 Due to Loading at High Strain Rates	102
<i>Sanjay Kumar, Anoop Kumar Pandouria, Purnashis Chakraborty and Vikrant Tiwari</i>	
Chapter 9 High Strain Rate Tensile Testing of High-Strength Steel Using Split Hopkinson Pressure Bar	108
<i>Makhan Singh, Kartikeya Kartikeya, Dhruv Narayan and Naresh Bhatnagar</i>	

Chapter 10	High Strain Rate Testing of Automotive Sheet Steel with Evaluation of a Double-Cell Crash Box	116
	<i>Pundan Kumar Singh, Ankit Kumar, Abhishek Raj, Rahul K. Verma and C. Lakshmana Rao</i>	
Chapter 11	Role of Notch Location and Loading Rate on Tensile Strength of Glass/Epoxy Composites	125
	<i>Ruchir Shrivastava and K. K. Singh</i>	
Chapter 12	Impact Analysis of Concrete Structure Using a Rate-Dependent Damage Model ..	136
	<i>K. Akshaya Gomathi and Amirtham Rajagopal</i>	
Chapter 13	A Novel Pulse-Shaping Technique to Forecast the Behavior of Brittle Material Using Split Hopkinson Pressure Bar	146
	<i>Shivani Verma, M. D. Goel and N. N. Sirdesai</i>	
Chapter 14	Experimental Investigation of Dynamic Behaviour of Ceramic Material and the Effectiveness of Pulse Shapers	159
	<i>V. B. Brahmadathan and C. Lakshmana Rao</i>	
Chapter 15	Optimizing Pulse Shaper Dimensions for Testing Rocks in Split Hopkinson Pressure Bar	168
	<i>Venkatesh M. Deshpande and Tanusree Chakraborty</i>	
Chapter 16	Dynamic Strength Enhancement of Concrete in Split Hopkinson Pressure Bar Test	175
	<i>Kavita Ganorkar, M. D. Goel and Tanusree Chakraborty</i>	
Chapter 17	Static and Dynamic Strength and Failure in Fiber-Reinforced Ultra-High-Performance Concrete	182
	<i>Shanideo N. Jadhav, Prakash Nanthagopalan and Krishna Jonnalagaddaa</i>	
Chapter 18	Dynamic Characterization of Goat Tibia.....	191
	<i>Ankit Malik, Nishant K. Sahu, Sudipto Mukherjee, Anoop Chawla and Naresh V. Datla</i>	
Chapter 19	FE Study on the Effect of Angle of Impact on the Performance of Aluminium Plate against an Ogive Projectile.....	200
	<i>Vimal Kumar and Aman Kumar</i>	
Chapter 20	Ballistic Performance of Oblique Impact on Monolithic and Layered in-Contact Metallic Targets against Ogival-Shaped Projectiles	209
	<i>Manoj Kumar and Nidhi Kumari</i>	

Chapter 21 Parametric Study on Ballistic Impact Response of Ceramic-Composite Armour .. 219
Sagar Ghatke, Sunil Nimje, Ashish Mohan, Ramdas Chennamsetti and Rajendra Gupta

Chapter 22 A Numerical Investigation on UHMWPE Composite Panel Subjected to Ballistic Impact with Lead Core Projectiles 227
Joseph Solomon and Puneet Mahajan

Chapter 23 High-Velocity Impact Response of Titanium/Composite Laminates: An Analytical Modeling 238
Ankush P. Sharma and R. Velmurugan

Chapter 24 Transient Dynamic Response of Clay Brick Masonry Walls of Varying Aspect Ratios against Low-Velocity Impact Load 248
K. Senthil, Ankush Thakur, S. Rupali, A. P. Singh and M. A. Iqbal

Chapter 25 A 3D Shear Deformation Theory for the Dynamic Response of 3D Braided Composite Shells under Low-Velocity Impact 260
Pabitra Maji and Bhriagu Nath Singh

Chapter 26 Mechanical Characterization of Bio-Sandwich Structures with Composite Skins and Coconut Shell Powder-Filled Epoxy Core..... 269
Ankush P. Sharma, S. Manojkumar, R. Velmurugan and K. Kanny

Chapter 27 Numerical Investigation of the Influence of the Design Parameters on the Blast Mitigation Response of Steel Plate Subjected to Free-Air Blasts 281
A. Prakash, A. V. S. Siva Prasad and Raguraman Munusamy

Chapter 28 Numerical Simulation of Water Tank Used for Underwater Blast Testing 290
M. D. Goel and Nenshol Jayant Anand

Chapter 29 Performance of RC Plates Subjected to Explosive Loading 303
Vimal Kumar

Chapter 30 Blast Response Analysis of Composite Column 312
A. S. Bhonge and M. D. Goel

Chapter 31 Characterization of Near-Field Blast Response of Aluminum Honeycomb Using Finite Element Simulations 324
Rohit Sankrityayan, Anoop Chawla, Sudipto Mukherjee and Devendra K. Dubey

Chapter 32 Parametric Study on Blast Response Mitigation Using Tube-Reinforced
Honeycomb Sandwich Structures 334
Payal Shirbhate and M. D. Goel

Index..... 345