CONTENTS

	Page
MECHANICAL PROPERTIES OF COMPOSITES	
The Microstructure of Composites	3
The Behavior of Single Fine SiC and Al ₂ O ₃ Fibers at High Temperature	9
The Relationship Between Compressive Strength and Stiffness Loss of	
Graphite Epoxy Composite Laminates	14
Static Mechanical Properties of Thermoplastic Matrix Composites	20
XPS Analysis of Carbon Fibre Surfaces and the Interfacial Properties of	
Epoxy Resin Composites	26
Stress-Strain Behavior of Kevlar-Epoxy Angle-Ply Laminates Under	
Compression Along the Thickness Direction	32
Stress-Strain-Time Relationship of SiC Yarns	38
Thermal Mechanical Properties of SiC Yarn	44
Effect of Moisture Absorption on the Mechanical Properties of Advanced Composites	50
The Tensile Characteristics of Coreless and Carbon-core Silicon Carbide	
Fibers Exposed to Some Environments	56
Mechanical Properties of Single Filament Composites Containing a High	
Toughness Metallic Filament Produced by Glass-Coated Melt Spinning	62
Thermoelastic Behavior of Injection-Molded Thermoplastic Composites	68
Weibull Analysis of Carbon Fibre Strength	75
The Efect of Reinforcement on Interfacial Bonding and Mechanical	, 0
Properties of Fiber Strength	80
The Effect of Curing Conditions on the Equilibrium Moisture Levels and	00
Residual Dicyandiamide (DICY) in GRP Laminates	87
A Thermodynamic Theory of Rate Independent Thermoplasticity of	07
Fiber-Reinforced Materials	94
Effect of Fibre and Resin Properties on Stress Gradients Around Openings in FRP	74
Orthotropic Plates	100
Effect of Hydrostatic Pressure on the Tensile, Compressive and Shear	100
Stress-Strain Behavior of Nylon 6-Glass Fiber Composites	106
Pyrolyzed Resinous Matrices for Composites	112
The Stress Corrosion of Glass Fibres and Epoxy Composites in Aqueous Environments	118
Strain Capabilites and Strain Rate Effects in Epoxy Resins and Laminates	124
The Ageing Properties of GRP	130
Elastic Moduli or Unidirectional Carbon Fiber Composites	135
Etastic Moduli of Officinectional Carbon Fiber Composites	133
ANALYSIS AND DESIGN OF COMPOSITE STRUCTURES	
	143
Viscoelastically Damped Multilayered Plates Tansian and Communication of the Peans and the Plates Made from Quadratic	143
Tension and Compression of the Beams and the Plates Made from Quadratic	1.40
Order Nonlinear Materials A Refined Theory for Lawrington Aminetrania Culindrical Shell	148
A Refined Theory for Laminated Anisotropic Cylindrical Shell	154
Nonlinear Analysis of Composite Laminates Accounting for Elastic-Plastic	1.60
Material Behavior	162
The Effect of Nonlinear Behavior of Composite Materials on Load	1.60
Capability of Laminate	168
Nonlinear Vibration and Postbuckling of Orthotropic Rectangular Plate with	15.4
Two Adjacent Edges Clamped and the Other Edges Simply Supported	174
Hybrid and Textile Structural Composites: An Overview	181
Composite Flywheel Burst Failure and containment Interactions	187
The Ultimate Strength of Open-Section Composite Material Beams	195
Calculation of the Room-Temperature Shapes of Unsymmetric Laminates	201
Analysis of Stability for the Delamination of Clamped Orthotropic Rectangular Plates	207

Approximate Analyses for the Bending and Vibration of Laminated Plates	214
The Development of Aeroelastic Tailoring in the United States	220
Simple Design Concept of Composite Structural Components with Special	
Reference to Fabrication Ease	228
Optimum Design of Symmetrically Laminated Composites, Considering the	
Stress Peak at an Angle-Plied Interface	233
Effects of Transverse Shear on the Nonlinear Bending of Rectangular Plates	
Laminated of Bimodular Composite Materials	239
Thermal Stresses in Composite Tubes	246
Buckling Load of Fiber Reinforced Composite Laminated Plates	252
Development of Filament Wound S-2 Glass/Epoxy Pressure Vessel	261
Stability of Fiber-Composite Plates with Various Support Conditions	267
Finite Element Analysis of Laminated Plates Under Various Boundary Conditions	274
A Bending Analysis of Laminated Plates Under Various Boundary Conditions	280
On a Third-Order Shear Deformation Theory for Laminated Composite Shells	288
The Catastrophic Failure of Pressurized Graphite/Epoxy Cylindrical Shells	• • •
Flawed with Two Colinear Slits	295
Optimization of Composite Structures by Controlled Insertion of Deletion of	
Diverse Fiber Types	301
Improved Laminated Composite Plate Theory	307
Buckling of Filament-Wound Composite Tubes Under External Pressure Loadings	315
Analysis of Composite Plates	321
Accurate Shear Force Evaluation with a Simple Bi-Linear Plate Bending Element	327
On the Load-Bearing Behaviour of Prestressed and Non-Prestressed	
Bolted Joints of GRP	333
A Field-Consistent 4-Noned Laminate Anisotropic Plate/Shell Element	339
Failure of Buckled Composite Plates	345
Optimization of Laminated-Composite Circular-Cylindrical Shells Subjected to	
Combined Loads	351
Thermal Buckling and Postbuckling Behavior of Antigymmetric Angle-Ply Laminates	357
Buckling Analysis of Discretely Stiffened Composite Long Curved Panels Under	331
Compression and Shear	363
The Analysis of Special Orthotropic GRP Multi-Layered Pipes Subject to Fluid Loading	370
Minimum Weight Web-Core Composite Sandwich Panels Subjected to In-Plane	370
	276
Compressive Loads	376
Adhesive Stresses in Bonded Structures	381
Natural Vibrations of Channel-Sectioned Laminated Composite Beams with	207
Moderate Thickness	387
The Nonlinear Elastic Buckling Problem of Laminated Cylindrical Panels of	
Composite Materials Under the Action of Axial Load	393
Aeroelastic Divergence of Orthotropic Plates	399
The Solution of Spline Element for Bending Problems of Rectangular	
Symmetrically Laminated Plates	409
Geometrical Nonlinear Analysis of Laminated Anisotropic Plates by	
Weighted-Residual Method	416
Effect of Laminate Configuration on Failure of Bolted Composite Joint	422
Influence of Prebuckling Deformations on Instability of Laminated	
Composite Cylindrical Shells Under Various Boundary Conditions	428
,,	
FRACTURE AND DAMAGE	
Determination of the Fracture Toughness Parameters for an MDF Cement Composite	439
The Relationship Between Resin Ductility and Composite Under Influence of	
Clod Climate Factors	
	115
Strength of Polymer Fibrous Composite Structures Under Influence of	445
Cold Climate Factors Delamination of Continuous Carbon Fibra Poinforced Thermonlectic Compositors	451
Delamination of Continuous Carbon Fibre Reinforced Thermoplastic Composites	
Delamination of Continuous Carbon Fibre Reinforced Thermoplastic Composites A New Statistic Model of Crack Propagation in a Unidirectionally	451 458
Delamination of Continuous Carbon Fibre Reinforced Thermoplastic Composites A New Statistic Model of Crack Propagation in a Unidirectionally Fiber-Reinforced Composite	451 458 465
Delamination of Continuous Carbon Fibre Reinforced Thermoplastic Composites A New Statistic Model of Crack Propagation in a Unidirectionally	451 458

Failure Mechanisms in Thermally Loaded Models of Fibrous Composites	
with a Brittle Matrix	483
Fracture Behaviour in Filament-Wound Tube with Notch Under Lateral	
Compressive Loading	489
Mixed-Mode Fracture in Graphite/Epoxy Laminates	495
Tensile Fracture of Glass Fiber Reinforced Laminates with Central Hole	505
Analysis of Fracture in Fibre Composites	511
Analysis of Progressive Damage Accumulation in Composites	516
Stress Intensity Factors of Orthotropic Laminate Composite Containing Cracks	
on the Interface	522
Anisotropic Damage in Orthotropic Fiber-Reinforced Composite Plate	530
The Effect of Damage Development on the Compression Failure of Fatigued	527
Multidirectional Graphite/Epoxy Laminates	537
Delamination Analysis of Composites with Distributed Damage Using a J Integral An Anisotropic Damage Model for Anisotropic Material	543 549
Failure in Quasi-Isotropic Composite Fiber Composites	556
A Fracture criterion of Crossply Fiber Composites	564
Effects of Void and Fiber Contents on Fracture Toughness of R-RIM Polyurethanes	570
On Fracture Mechanice of Matrix Cracking in Composite Laminates	576
Study on the Characteristics of Delamination in Composite Laminates	585
Buckling and Growth of a Strip Delamination in a General Laminate	592
A Mixed-Mode Crack Analysis on Interlaminar Shear Fracture of GSM-CRP by FEM	598
FATIGUE, CREEP, AND IMPACT	
On the Fatigue Crack Propagation Behavior of Plain Woven FRP	607
Effect of Time and Temperature on Compressive Failure of FRP in Edge-wise Direction	613
Nonlinear Viscoelastic Behavior of Epoxy-Matrix Composites Under	
Combined Mechanical and Environmental Loadings	619
Impact Damage in Short-Fiber Reinforced SMC composites	624
Deformation and Damage of Composite Plates Under Impact Loading	630
Fatigue Crack Propagation and Fracture Toughness of Short Glass Fiber/PEEK Matrix Composites	638
Impact Strength Improvement of Carbon Fiber Reinforced Nylon 6-6	644
Stress Field in an Orthotropic Laminated Medium with a Crack Subject to Impact Loads	653
Wood in Impact: Some Historical and Contemporary References	658
Oak Targets and Naval Gunnery in the Early 19 th Century	667
Effects of Cyclic Loading on the Dynamic Viscoelastic Properties of Epoxy	
Composites	676
Dynamic Simulations on Stochastic Tensile Failure Process of Unidirectional	603
Fiber Reinforced Composites A Hybrid Approach to Composite Component Life Prediction	682
The Final State of Fatigue Damage in Graphite/Epoxy Laminates	688 697
The Analysis of the Long-Term Strength of GRP/Composites	703
Evaluation of the Damage of Carbon/Epoxy Composite Laminates Under Static	103
and Fatigue Loading by Thermographic Analyses	710
An Experimental Research in the Criterion of Tensor Multinomial Composite Materials	717
STRESS ANALYSIS AND FAILUARE CRITERIA	
Stress Concentration Around Bolt-Hole of Angle-Ply Composite Laminates	731
Strength Prediction of Carbon/Epoxy Composites with Small Holes and Small Cracks	
Carl-Gustaf Aronsson and Kaj Hollman	737
Compressive Failure of Uniaxial Composites	746
Failure Criterion for Epoxy Cast Under Plane Stress State	751
Nonlinear Bimodulus Model and Strength Criterion of Tridirectionally Woven	
Fiber Reinforced Composite Materials	757
Probability of Failure of a Proof-Loaded Composite Plate with a Circular Hole	764
The Stress Analysis of the Matrix in Fiber-Reinforced Composites	770
An Efficient Method for the Calculation of Interlaminar Streeses in Composites	777
Materials Due to Thermal and Mechanical Effects	777

Elasticity Solution for Interlaminar Stresses in a Cross-Ply Laminated					
Circular Cylindrical Shell	784				
On Stresses in a Laminate with Two Elliptical Holes	789				
The Cubic Strength Criterion of Complex Modes for Fiber-Reinforced					
Composite Materials	795 801				
On the Nature of Interlaminar Edge Stress in Laminated Composite Structures					
Contact Between a Rigid Cylinder and a Liminated Beam	809				
Experimental Study on Damage Mechanics of Composite Laminates—Damage					
Strain Energy Release Rate Failure Criterion	817				
Stress Concentration Factor and Factor and Strength Reduction Factor of Unidirectional					
Composites Weakened by an elliptical Hole	825				
Determinate and Indeterminate Singularities in Composites	832				
Interlaminar Stresses of a Laminated Composite Lap Joint	838				
Stress Determination in Edge-Cracked Anisotropic Plates by an Extension of					
Boundary Collocation Method	846				
Failure Mechanisms of Unidirectional Composites—the Influences of Fiber,					
Matrix and Interface on Strength of Composites	855				
On the Tensile Strength of Cross-ply Composite Laminates	862				
An Enerby Method in the Analysis of Interlaminar Stresses of Composite Laminates	870				
j j					
TESTING AND EVALUATION					
Monitoring Acoustic Emission in Impact-Damaged Composites	879				
Detection of Failure Progression in Cross-Ply Graphite/Epoxy Through Acoustic					
Emission	889				
Ultrasonic Nondestructive Testing of Fiber Reinforced Composite Materials	899				
Improved Off-Axis in specimens	905				
Experimental Study of the Effect of Stitching on Strength of a Composite Laminate	912				
Experimental Correlation Study on Tensile Failure Processes and Acoustic	712				
Emission of GFRP Laminate Under Temperature Environments	919				
An Instrument for Measuring Precisely the Cross-Sectional Area and Axial	717				
Young's Modulus of Single Carbon Fiber by Resonance Method with Contactless					
Detection System	925				
	923				
Studies on the Mechanical Properties and Fracture Morphologies of Hybrid	026				
Carbon/Glass Fiber Reinforced Hybrid Matrix (PSF/ESF) Composites	936				
The Characteristics of Acoustic Emission for Various Types of Failure	0.42				
Occurring in Composites	943				
Electron Microscopic Investigations on Fiber Composite Materials During Loading	949				
Analysis of the Out-of-Plane Deflections of Orthotropic Circular Plantes and Its	0.5.5				
Application to Bending Rigidity Measurements	955				
Low temperature Tensile Tests of Glass-Reinforced Plastics	961				
Dynamic Behaviour of Postbuckled Composite Plates Undre Acoustic Excitation	966				
Nondestructive Evaluation of Delaminations in GFRP Composites by					
Acoustic -Ultrasonic Technique	972				
The Felicity Effect in Acoustic Emission from Composites	978				
Influence of Disperse Particles on Physical and Mechanical Properties of Pure Iron	983				
Defects and Physical and Mechanical Properties of Boron Continuous Filaments	988				
A New Method to Detect the Statistical Acoustic Emission Features of the					
Fibre Breakages	994				
Experimental Study of Constitutive Relation for Unidirectional Glassfibre					
Reinforced Resin Under Tensile Impact	997				
Relationships Between Defects-Mechanical Property in Carbon/Epoxy Composite					
Materials—Effect of Defects on the Transverse Tensile Behavior of					
Carbon/Epoxy Composites	1003				
Measurement of Dynamic Moduli and Damping of Carbon/Epoxy	1010				
METAL MATRIX COMPOSITES					
Endochronic Elastoplastic Analysis of Fiber Reinforced Metal-Matrix Composites					
in Monotonic and Cyclic Loading	1019				
Fabrication of SiC/Al Composites by Solid State Rolling and Hot Pressing Method	1026				
1 , , , , , , , , , , , , , , , , , , ,					

The Effects of Constituent and Fabrication Parameters on the Mechanical		
Properties of C/Al Composites	1033	
Thermal Expansion of Carbon Fiber-Aluminium Composites	1040	
Effect of Interfacial Conditions on the Tensile Strength of Carbon Fiber-6061		
Aluminum Alloy Composites	1045	
High Temperature Mechanical Properties of Continuous α-Alumina		
Fibers in an Aluminum Alloy Matrix	1051	
Study on the Strength, Fracture and Interface of Gr/Al Composites	1057	
Study on the Fracture of Carbon/Aluminum Composites Under Lower Stress Level	1064	
MANUFACTURING AND OTHER TOPICS		
General Theory of Composite Materials	1073	
Aramid Fiber for General Engineering Applications	1083	
Curing Deformation of L-Shaped Composite Parts		
Out-of-Plane Deformation Caused by Flow State and Fibre Orientation of		
Composites After Injection Moulding Process	1098	
The Eigenvalue Problems Y-1 $\tan Y + rX-1 \tan X=0$ and		
tan Y+r-1X tan X=0 for SH Wave Propagation in Bistratified Media	1104	
Study on the Cutting Mechanism of GFRP	1110	
Durability of Glass Fiber Reinforced Mortar and Concrete	1116	
Author Index	1123	