

# Table of Contents

## Preface

<b>Length-Scale Effects in Nano- and Micro-Mechanics of Solids</b>	
K.S. Kim and J.A. Hurtado	1
<b>Mechanism-Based Strain Gradient (MSG) Plasticity and the Associated Asymptotic Crack-Tip Fields</b>	
K.C. Hwang and Y.Y. Huang	9
<b>An Analysis of Fatigue Crack Growth Rate Considering Spatial Variation of Fatigue Crack Growth Resistance</b>	
S.J. Kim	19
<b>Rectangular Array and Zig-Zag Array of Elliptical Holes in Solids under Uniaxial Tension (Formulae of Maximum Stresses and Tensile Stiffnesses)</b>	
H. Igawa	25
<b>Crack Growth in Stainless Steel 304AT 538°C under Fatigue Loading with and without Hold Time</b>	
Y.M. Baik and K.S. Kim	31
<b>An Inverse Fracture Problem of a Shear Specimen with Double Cracks</b>	
Y.T. Li, Z.Y. Rui and J.L. Huang	37
<b>Fracture Mechanics Analysis of Cracked Plate Repaired by Composite Patch</b>	
K.H. Chung, W.H. Yang and M.R. Cho	43
<b>Fracture Toughness Test of Small CNS Specimen with an Interface Crack Subjected to Mixed-Mode Loading</b>	
K. Machida	49
<b>Theoretical Investigation of Controllable &amp; Regular Fracture Theory</b>	
A. Zhou, Y.B. Wei and F.Y. Lang	55
<b>Crack Identification Using Classical Optimization Technique</b>	
M.W. Suh, J.M. Yu and J.H. Lee	61
<b>Study on Strength of Rock Material under Dynamic Triaxial Compressive Loads Based on Sliding Crack Model</b>	
H.B. Li, T.J. Li, J. Zhao, J.G. Gao and J.G. Jiang	67
<b>Kinking out of a Mixed Mode Interface Crack</b>	
T. Ikeda, Y. Komohara, A. Nakamura and N. Miyazaki	73
<b>Global Crack-Line Displacement Fitting Procedure: Edge Cracks</b>	
H.Y. Jiang, Z.L. Li and F.L. Zhan	79
<b>A Stochastic Modeling for Predicting Fatigue Crack Growth under Variable Amplitude Loading</b>	
D.S. Shim and J.K. Kim	85
<b>A Highly Accurate BEM in Fracture Mechanics</b>	
Z.L. Li, F.L. Zhan and S.H. Du	91
<b>Simulation and Experimental Verification of Axial Multi-Crack Propagation and Crack Kinking in Pressurized Fuselage</b>	
A. Shimamoto, T. Oguchi, D.Y. Ju and A.S. Kobayashi	97
<b>Calculation of Stress Intensity Factor Using Weight Function Method for a Patched Crack</b>	
J.H. Kim, K.W. Lee, D.C. Seo and S.B. Lee	103
<b>Interaction of a Horizontal Finite Crack with a Center of Dilatation in Elastic Half-Planes</b>	
K.T. Chau, R.H.C. Wong and R.C.K. Wong	109
<b>Determinations of Stress Intensity Factor in Isotropic and Anisotropic Body by the Photoelastic and Caustics Methods under Various Load Ratios</b>	
A. Shimamoto, J.H. Nam, T. Shimomura and E. Umezaki	115
<b>A Micromechanics Criterion for the Ductile Fracture of a Polycarbonate</b>	
T.J. Wang, K. Kishimoto and M. Notomi	121
<b>Effect of Specimen Thickness and Load History on Crack Growth of 7175-T74 Forging Aluminum Alloy</b>	
J.Z. Liu, X.R. Wu, C.F. Ding and D. You	127
<b>Plastic <math>\eta</math> Factors Based on Load-CMOD Records for SE(B) Toughness Testing Specimens</b>	
Y.J. Kim	133

<b>Electromagnetic Thermoelastic Solids with an Elliptical Cavity or a Crack under Uniform Heat Flow</b>	139
X.L. Liu, J.X. Liu and J. Zheng	
<b>Evaluation of Stress Intensity Factor Using White Light Photoelastic Experiment</b>	145
E. Umezaki, K. Kodama and A. Shimamoto	
<b>Singularity Intensity Factor Calculation in Plates and Shells Based on the Singular Line Mapping Technique in FEMOL</b>	151
C.T. Liu and Y.J. Xu	
<b>Collective Evolution Characteristics and Computer Simulation of Voids Near the Crack Tip of Ductile Metal</b>	157
H. Yu and Y.S. Hong	
<b>The Relationship of SIF between Plate and Plane Fracture Problems and the Effect of the Plate Thickness on SIF</b>	163
Y.J. Xu and C.T. Liu	
<b>Fractographic Approach for Fracture Mode</b>	169
N. Hattori, S. Nishida and H. Yamamoto	
<b>Microscopic Deformation at a Crack Tip in a Ferroelectric Material</b>	175
W. Yang, F. Fang and T. Zhu	
<b>The Unified Description of the Three-Dimensional Fields at Notches and Cracks</b>	181
W. Guo, T. Chang and Z. Li	
<b>Buckling and Fracture of Thin Films under Compression</b>	187
B. Cotterell and Z. Chen	
<b>Recent Advances in Three-Dimensional Fracture Mechanics</b>	193
W. Guo	
<b>Static Magnetoelastic Coupling in Soft Ferromagnetic Elastic Solids with Collinear Cracks</b>	199
W. Liang, Y.P. Shen and M.H. Zhao	
<b>A Study on Deformation Energy of P/M Copper and Ingot Material</b>	205
T. Senthilvelan, A. Venkatraman and K. Raghukandan	
<b>Fracture Analysis on the Coating Crack Perpendicular to the Interface of Bi-Material</b>	211
B. Su and C. Li	
<b>A Combined Model of Short Crack Closure Accounting for Both Plasticity and Roughness Induced Crack Closures</b>	217
X.P. Zhang, C.H. Wang, J.C. Li, Y.W. Mai and L. Ye	
<b>Scattering of Plane Compressional Waves by a Spherical Inhomogeneity with a Linear Spring Type Interface</b>	223
Z. Zhong and X.B. Yu	
<b>From Recent Studies on Impact Fracture of Polymers and Polymer Composites</b>	229
K. Takahashi	
<b>Dynamic Stress Intensity Factors of Cylindrical Interface Cracks Subjected to P-Wave</b>	241
W.J. Feng and Z.Z. Zou	
<b>Effects of Impact Loading Rate on the Delamination Behavior of Composite Laminates</b>	247
N.S. Choi	
<b>Shock Adiabatics of Cement Mortar at Intense Dynamical Loading by Taking into Account the Internal Damage</b>	253
S.C. Shih, D. Li and L.L. Wang	
<b>A Study on the Impact Failure Mechanism of Aluminum-PMMA Interfacial Crack</b>	259
D.K. Shin, J.J. Lee and M.Y. Lyu	
<b>Experimental Analysis of Dynamic Effects in Brittle Fracture of PMMA</b>	265
K. Arakawa, T. Mada and K. Takahashi	
<b>Impact Damage Behavior and Evaluation of Residual Strength in Plain-Woven Glass/Epoxy Composites</b>	271
K.W. Kang and J.K. Kim	
<b>Measurement of Dynamic Fracture Parameters in the Expansion Process at High Strain Rate</b>	277
C.Y. Gao, H.J. Shi, C.L. Liu, C.H. Bai and Z.H. Yao	
<b>A Study on the Development of the Dynamic Photoelastic Experimental Method for Isotropic/Orthotropic Bimaterials</b>	283
J.S. Hawong, D.C. Shin, O.S. Lee, H.J. Lee and J.K. Ha	

<b>Evaluation of Large Strain in Ductile Polymers under High Speed Loading</b>	289
T. Kuboki, T. Mada and K. Takahashi	
<b>Damages in Woven Polymer Matrix Composites under Impact Loading</b>	295
T.W. Kim, H.S. Park, C. Kim and J.H. Lee	
<b>Applications of the Shadow Spot Method on the Determination of Dynamic Stress Intensity Factors</b>	
Z. Li and X. Su	301
<b>High Strain-Rate Deformation of Composite Materials Using a Split Hopkinson Bar Technique</b>	
O.S. Lee, J.Y. Lee, G.H. Kim and J.S. Hwang	307
<b>Experimental Studies on Dynamic Fracture Phenomena</b>	
T. Nishioka, T. Fujimoto and K. Sakakura	313
<b>The Fracture Problem of Framed Plate under Explosion Loading</b>	
Y.T. Li, Y.B. Wei and Y. Hou	319
<b>Dynamic Mixed Mode Crack Propagation Behavior of Structural Bonded Joints</b>	
O.S. Lee and A.S. Kobayashi	325
<b>Analysis of a Crack in a Functionally Gradient Interface Layer under Static and Dynamic Loading</b>	
Y.S. Wang and D. Gross	331
<b>Fundamental Study of Dynamic Stress Wave Using a Dynamic Photoelastic Method</b>	
T. Kanemitsu and Y. Sawa	337
<b>Using High-Speed Camera to Investigate Failure Waves in K9 Glass</b>	
J.H. Zhao, C. Sun, Z.P. Duan, X. Tan, F. Zhao and S. Wen	343
<b>A Study on Dynamic Fracture in Stiffened Cylinder Subjected to a Strong Acoustic Wave</b>	
E. Kim, H.L. Yin, K.S. Kim, C.H. Jo, O.S. Lee and C.W. An	349
<b>Static and Mode Analyses of Composite Plates Using Modified 16-Node Solid Elements, and Prediction of Stiffness Errors Resulting from Reduced Integration</b>	
Y.D. Kwon, Y.S. Kim, T.H. Yun and M.H. Cho	355
<b>Shape Optimization of General Structures</b>	
S.Y. Han and J.S. Maeng	361
<b>Simulation of Crack Growth and Creep Fracture by a Multicrack Growth Model</b>	
M. Tanaka	367
<b>Dual-Phase Functionally Graded Composite Materials: Overall and Discrete Analysis Models</b>	
J.R. Cho and D.Y. Ha	373
<b>A Study on Efficiency Improvement of Evolutionary Structural Optimization</b>	
S.Y. Han, T.H. Lee and J.K. Lim	379
<b>Numerical Simulation of Crack Elongation and Reinforcement Effectiveness of the Isolated Rockmass between Shiplocks of Three Gorges Project</b>	
X. Ping and X.T. Feng	385
<b>Out-Of-Plane ESPI Simulation for the Harmonic Vibration of a Thin Right-Angled Plate</b>	
S.S. Jarng, J.H. Lee, H.G. Ahn and J.C. Park	391
<b>Element Modeling for Vibration Analysis of Plate</b>	
Y.P. Shi and P. Zeng	397
<b>Hierarchical Models for Laminated Composite Structures Based on p-Extensions</b>	
J.R. Cho, S.H. Kim and D.Y. Ha	403
<b>Nonlinear Displacement Field in the Vicinity of Notch-Tip in Rubber Toughened PMMA</b>	
M. Todo, K. Arakawa and K. Takahashi	409
<b>Optimum Design for Fatigue Strength Improvement of Spot-Welded T-Type Bus Window Pillar Member</b>	
M.H. Kim, D.S. Kim, M.W. Suh and D.H. Bae	415
<b>Dynamic Response Analysis of a Structure under High Over-Load</b>	
L. Liu and X. Lin	423
<b>Nonlinear Analysis of Thick Composites with Fiber Waviness under Flexural Loading</b>	
H.J. Chun and S.W. Lee	427
<b>Fuzzy Mathematical Method for Evaluation of Rock Mechanical Indexes</b>	
G. Zhang, T.J. Li and S.W. Bai	433

<b>Topology Optimization of the Inner Reinforcement for an Automobile Hood Using Modal Design Sensitivity Analysis</b>	439
T.H. Lee, S.Y. Han and J.K. Lim	
<b>Computational Studies on Dynamic Fracture Phenomena</b>	445
T. Nishioka and T. Fujimoto	
<b>Nonlinear Dynamic Buckling Analysis of a Grid Structure</b>	451
K.H. Yoon, K.N. Song and Y.S. Lee	
<b>Dynamic Modeling and Numerical Analysis for Large Scale Chime Group</b>	457
P. Zeng, L. He and G.H. Tang	
<b>Plastic Analysis of Square Grillage under A Point Load</b>	463
S.C. Lee, K.S. Hong and K.S. Kim	
<b>Finite Element Analyses of Specific Damping Capacity and Undamped/Damped Forced Motion of Composite Plate Using Modified 16-Node Solid Elements</b>	469
T.H. Yun, Y.D. Kwon, C. Kim and J.G. Park	
<b>Stress Analysis for New Gasketless Flange and Superseal</b>	475
N. Noda, K.-. Takeuchi, Y. Takase and M. Nagawa	
<b>A Study on Stress Wave Propagation in Stiffened Cylinder Subjected to a Strong Acoustic Wave</b>	481
J.H. Choi, K.S. Kim, C.H. Jo, O.S. Lee and C.W. An	
<b>Element-Free Galerkin Methods for Fracture of Functionally-Graded Materials</b>	487
J. Chen, L.Z. Wu and S.Y. Du	
<b>A Study on the Shape Design and Contact Characteristic of Wheel-Rail for Rolling Stock</b>	493
K.D. Sung, W.H. Yang and M.R. Cho	
<b>Stress Analysis of Toroidal Hole in an Infinite Body</b>	499
T. Matsuo and N. Noda	
<b>A Parametric Study on the Fracture Mechanics Analysis of Elbow with Surface Crack</b>	505
Y.S. Chang, H.S. Kim and T.E. Jin	
<b>On the Multiple Isoparametric Finite Element Method and Computation of Stress Intensity Factor for Cracks in FGMs</b>	511
Z.Z. Zou, S.X. Wu and C.Y. Li	
<b>The Effect of a Longitudinal Stiffener on the Elastic Shear Buckling of Orthotropic Web Plate</b>	517
S.J. Yoon, J.H. Jung and S.K. Cho	
<b>Interaction among a Row of N Semi-Elliptical Notches and Edge Cracks</b>	523
T. Matsuo and N. Noda	
<b>A Computational Investigation on Metal/Ceramic Joints under Thermal Cyclic Loadings</b>	529
M.K. Park and S. Bahk	
<b>Progressive Failure Analysis of Composite Laminates Using 3-D Finite Element Method</b>	535
S.G. Joo and C.S. Hong	
<b>The Influence of Plastic Deformation on Interface Fracture Behavior</b>	541
M. Omiya, K. Kishimoto and T. Shibuya	
<b>An Analysis of Ironing Limit in Sheet Metal Forming</b>	547
J.B. Nam and K.S. Han	
<b>The Versatility of the Method of <math>K_I</math>, <math>K_{II}</math> Analysis by FEM Based on the Stress Value at a Crack Tip</b>	553
H. Nisitani, T. Teranishi, A. Saimoto and K. Fukuyama	
<b>Detecting Tool Wear in Face Milling with Different Workpiece Materials</b>	559
D.W. Cho, W.C. Choi and H.Y. Lee	
<b>Three Dimensional Finite Element Analysis for Elastic Plastic Crack Propagation in Thin Metallic Plate</b>	565
H. Okada, Y. Fukui, N. Kumazawa and T. Fujisaki	
<b>Study on the Bending Fatigue Damage of the Carbon and the Polypropylene Hybrid Fiber Reinforced Concrete</b>	571
Y. Hua, H.B. Qi, Z.Q. Jiang, S.Z. Huang and S.B. Zhang	
<b>The Effect of Aging Temperatures and Time on Mechanical Properties of CF8M</b>	577
J.D. Kwon, J.C. Park, Y.S. Lee, W.H. Lee and Y.W. Park	
<b>Effect of Temperature on the Damage Behavior of an Adhesively Bonded Butt Joint</b>	583
A. Fujinami, K. Osaka, T. Fukuda and M. Imanaka	

<b>Effect of Yield Strength and Crack Depth on COD-Decrease-Parameter m</b> Q.F. Li, H. Ni, S.L. Yang, M. Ma, P. Long and Z. Cui	589
<b>A Study on Intergranular Corrosion of Laser Treated Alloy 600 by DL-EPR Method and Microscopic Examination</b> Y.S. Lim, H.P. Kim, J.S. Kim and H.S. Kwon	595
<b>Damage of FRP Plates Containing Sharp Notches or Blunt Notches</b> H. Hyakutake and T. Yamamoto	601
<b>Radiation Damage of Reactor Pressure Vessel Steels Studied by Nondestructive Methods</b> D.G. Park, T.S. Byun, Y.Y. Song, J.H. Hong and I.S. Kim	607
<b>Reliability Calculation for Piping Containing Circumferential Crack Based on 3-D Elastic-Plastic SFEM</b> L.X. Huo, B. He and Y.F. Zhang	613
<b>Optimum Design of Linear Phased Array Transducer for NDE</b> J.H. Lee and S.W. Choi	619
<b>A Damage Model for Void Configuration and Failure under Different Constrained Deformation Region in Ductile Matrix</b> M. Kikuchi and M. Gheni	625
<b>Modeling of Mechanical Property Degradation by Short-Term Aging at High Temperatures</b> J. Kim and W.I. Lee	631
<b>On Failure Modes and Strength Characterization of Brittle Disordered Materials under Uniaxial Compression and Tension</b> C.A. Tang, P. Lin, H.Y. Liu and Z.Z. Liang	637
<b>Influence of Tool Wear on Hole Damage in Small Diameter Drilling of Printed Wiring Boards - Investigation based on Estimation of Cutting Forces and Internal Damage</b> H. Inoue, T. Hirogaki, E. Aoyama and T. Katayama	643
<b>Damage Tolerance Analysis Software (DATAS) for Crack Growth Life Prediction and Residual Strength Analysis of Aircraft Structures</b> I.S. Putra	649
<b>Prediction of Piping Failure Behavior using Wide-Plate Test</b> N.S. Huh, H.J. Cha, J.B. Choi, Y.J. Kim and C.R. Pyo	655
<b>Vibration Sensing and Impact Location Detection Using Optical Fiber Vibration Sensor</b> Y.C. Yang, W. Hwang, H.C. Park and K.S. Han	661
<b>New Estimates of Effective Moduli of Microcracked Materials</b> X.Q. Feng	667
<b>Realization of Higher-Mode Deformation of Beams Using Shape Memory Alloy Wires and Piezoceramics</b> S.M. Pae, H.J. Lee, H.C. Park and W. Hwang	673
<b>Fracture and Strength of Solids Associated with their Textures</b> D.N. Lee	679
<b>Overview of Fracture of Piezoelectric Ceramics</b> T.Y. Zhang, R. Fu, M.H. Zhao and P. Tong	695
<b>Effect of Heat Treatment and Chemical Composition on Caustic Stress Corrosion Cracking of Alloy 600 and Alloy 690</b> H.P. Kim, S.S. Hwang, Y.S. Lim, I.H. Kuk and J.S. Kim	707
<b>Nonlinear Evolution Properties of Rock Microfracturing Affected by Environment</b> X.T. Feng, T.J. Li and M. Seto	713
<b>Case Study on Fracture of Motor Whist Wire</b> H. Sakamoto, T. Yamaguchi and M. Mizumoto	719
<b>The Propagation of a Layer-Confining Love Wave in Layered Piezoelectric Structures</b> Z.K. Wang, F. Jin, Z. Zong and T.J. Wang	725
<b>Characteristics of Delamination in Graphite/Epoxy Laminates under Static and Impact Loads</b> J. Kook, I.Y. Yang and T. Adachi	731
<b>An Experimental Observation About Dislocation Nucleation Based On Peierls Concept</b> Y.M. Xing, F.L. Dai and W. Yang	737
<b>Effect of Contact Shape on the Cracking Behaviour</b> H.K. Kim and H.S. Kang	743

<b>Study of Fracture Origin on Low Cycle Fatigue of Spheroidal Graphite Cast Iron Having Various Matrixes</b>	749
K. Morino, F. Nishimura and H. Nisitani	
<b>The Propagation Behavior of Love Waves in a Pre-stressed Piezoelectric Layered Structure</b>	755
F. Jin, Z.K. Wang and T.J. Wang	
<b>The Effect of Nucleation Time on the Growth of a Microvoid in a Viscoelastic Material</b>	761
J.K. Chen, Z.P. Huang and S. Bai	
<b>Effects of Stress Fields around Micro-Surface Defects on the Occurrence of Slip and Micro Cracks</b>	767
K.R. Lee and J.B. Kim	
<b>Studies of Fracture of Piezoelectric Ceramics at HKUST</b>	773
T.Y. Zhang	
<b>Tensile and Fracture Behaviors of PC/ABS Polymer Alloy</b>	779
M. Notomi, K. Kishimoto, T.J. Wang and T. Shibuya	
<b>Influence of Stochastic Mesoscopic Structure on Macroscopic Mechanical Behavior of Brittle Material</b>	785
Y.F. Fu, M.L. Huang and C.A. Tang	
<b>Fracture and Strength of Notched Thick Composites</b>	791
B.S. Hwang, S.B. Park, B.H. Kim, I.S. Park, H.S. Song and J.K. Lee	
<b>A Study on the Integrity Evaluation for PWR Vessel by Pressurized Thermal Shock</b>	797
S.G. Jung and T.E. Jin	
<b>Crack Healing Behavior and Mechanical Property of Mullite/SiC Composite Ceramics</b>	803
K. Tsuji, K. Ando and S. Sato	
<b>Multi-Crack Coalescence in Rock-Like Material under Uniaxial and Biaxial Loading</b>	809
P. Lin, R.H.C. Wong, K.T. Chau and C.A. Tang	
<b>Effects of Temperature and Stacking Sequence on the Mode I Interlaminar Fracture Behavior of Composite Laminates</b>	815
H.S. Kim, W.X. Wang and Y. Takao	
<b>Effect of Remanent Polarization on Electro-mechanical Fields Near an Elliptic Cavity or a Crack in Piezoelectric Ceramics</b>	821
B.C. Liu, D.N. Fang and K.C. Hwang	
<b>Nano-Fractographic Estimation on the Profiles and Dimensions of Fatigue Striation</b>	827
S.J. Cho, H. Ishii and J.D. Kwon	
<b>Strength of Crack-Healed <math>\text{Si}_3\text{N}_4/\text{SiC}</math> Composite Ceramics</b>	833
M.C. Chu, K. Ando, F. Yao and S. Sato	
<b>Studies on the New Technique of Rapid Solidification and the Mechanical Behaviors of Macrocrystalline Alloys</b>	839
Z.D. Liu, K. Yang and S. Bai	
<b>The Effects of Texture on <math>K_{IH}</math> in the Radial Direction in Zr-2.5%Nb Pressure Tube Materials</b>	845
S.S. Kim, S.C. Kwon, K.N. Choo, Y.M. Cheong and Y.S. Kim	
<b>Influence of Grain Boundary Characteristics on Cavitation Behavior in P/M7475</b>	851
T. Hirata, S. Tanabe, M. Kohzu and K. Higashi	
<b>The Effects of Confining Compression on Fracture Coalescence in Rock-like Material</b>	857
R.H.C. Wong, P. Lin, K.T. Chau and C.A. Tang	
<b>Fracture Toughness Enhancement Due to Stress/Strain-Induced Martensitic Transformations in Solids</b>	863
S.V. Gladkovskii and V.A. Gladkovsky	
<b>Fracture Behavior of a Crack in Gas Pipeline Considering Constraint Effects</b>	869
D.J. Shim, Y.K. Jang, J.B. Choi and Y.J. Kim	
<b>Numerical Analysis of Dimple Fracture Process under Different Constraint Conditions</b>	875
M. Kikuchi and A. Takahashi	
<b>Microstructure of the Carbon and the Polypropylene Hydrid Fiber Reinforced Concrete Acted by Bending and Tensile Stress</b>	881
H.B. Qi, Y. Hua, Z.Q. Jiang, S.Z. Huang and S.B. Zhang	
<b>Acoustic Emission Technique for Pipeline Leak Detection</b>	887
M.R. Lee and J.H. Lee	

<b>Fracture Behaviors of GFRP Plates Subjected to Impulsive Loading</b>	893
B. Syam, H. Homma and K. Nakazato	
<b>Fatigue Strength Decrease of Structural Materials Caused by Atmosphere Corrosion and Aging</b>	899
Q. Yang and B.T. Wang	
<b>Creep Life and Properties Evaluation by ISM Method and Acoustic Emission for Cr-Mo-V Steels</b>	903
S.G. Lee	
<b>Expanding of the Fatigue Life of Thermal Barrier Coating by Mixing MoSi<sub>2</sub> to Thermal Sprayed Layer</b>	909
K. Sonoya and S. Tobe	
<b>Effects of Pad Material on Fretting Fatigue Behavior in CFRP Laminates</b>	915
M.S. Kim and H.S. Shin	
<b>Study on Double Shot Peening and Fatigue Limit of Gear</b>	921
K. Ando, K. Matsui and H. Ishigami	
<b>A Study on Probabilistic Fatigue and Calendar Fatigue Life</b>	927
B.T. Wang and Q. Yang	
<b>Influence of Microstructures on Fatigue Limit of High Strength Ductile Irons</b>	933
J.H. Kim and M.G. Kim	
<b>Fretting Fatigue Behavior of Structural Steels</b>	939
H. Yamamura, Y. Yamada and R. Ebara	
<b>Fatigue Failure Model for Composite Laminates under Multi-Axial Cyclic Loading</b>	945
C.S. Lee, W. Hwang, H.C. Park and K.S. Han	
<b>A New Method to Deal with the Staircase Fatigue Test</b>	951
Q.Z. Fang, S.S. Zhang, M.H. Zhao and Y.J. Liu	
<b>Fatigue Life Prediction of Spot-Welded Joint by Strain Energy Density Factor using Artificial Neural Network</b>	957
I.S. Sohn and D.H. Bae	
<b>Fatigue Properties of Tungsten Fiber Reinforced Ti-6Al-4V Alloy</b>	963
S.Y. Son, S. Nishida, N. Hattori and K. Nakano	
<b>Failure Analysis of the Fourth Compressor Pans in Aero-Engines</b>	969
G. Fu and W. Su	
<b>Thermal Aging and Low Cycle Fatigue Characteristics of CF8M in a Nuclear Reactor Coolant System</b>	975
J.D. Kwon, S.W. Woo, Y.S. Lee, J.C. Park and Y.W. Park	
<b>Study of Crack Propagation Behavior on Low Cycle Fatigue in Spheroidal Grahite Cast Iron Based on Observation of Surface and Fracture Section</b>	981
F. Nishimura, K. Morino and H. Nisitani	
<b>Cyclic Softening Properties of 30Cr2MoV Steel at Elevated Temperatures</b>	987
Z.D. Liu, K. Yang, X.P. Mao, S. Bai and J.Y. An	
<b>A Study on the Corrosion Fatigue Characteristics of 12Cr Alloy Steel</b>	993
S.Y. Cho, C.H. Kim and D.H. Bae	
<b>Corrosion Fatigue Crack Initiation Life of a Ship Structural Steel in Dilute Sulfuric Acids</b>	999
Y. Kobayashi, Y. Tanaka and H. Goto	
<b>An Analysis of Random Fatigue Strength of K-Type Tubular Joints by Probabilistic Fracture Mechanics Method</b>	1005
G.H. Nie, R. Shi and R.J. Zhang	
<b>Fatigue Life Prediction of Bolted Joints Using Fatigue Modulus</b>	1011
C.K. Jung and K.S. Han	
<b>Study of Crack Propagation Behavior on Low Cycle Fatigue in Squeeze Cast Aluminium Alloy</b>	1017
K. Morino, F. Nishimura, K. Takahashi, Y.H. Kim and H. Nisitani	
<b>Reliability Analysis of Ship Hull Girders Considering the Degradations of Corrosion and Fatigue</b>	1023
H. Sun, G.H. Liao and Y. Bai	
<b>Fatigue Analysis of Vane Components for Gas Turbine Engine</b>	1029
J.H. Kim, K.H. Kim, K.K. Joung, K.C. Ham, J.I. Song and S.I. Bae	

<b>Fatigue Crack Growth Simulation and Estimation for Rolling Contact</b>	1035
M. Akama and I. Susuki	
<b>The Effect of Tensile Hold Time on the Fatigue Crack Propagation Behavior in STS 316L</b>	1041
J.W. Im and B.S. Lim	
<b>Fatigue Strength of Crack-Healed Ceramics</b>	1047
K. Ando, M.C. Chu, F. Yao and S. Sato	
<b>Fracture Behaviours of Advanced Polymer Composites under Mixed Mode Loading</b>	1053
K. Kishimoto	
<b>Interface Adhesion and Interlaminar Fracture Resistance of Carbon/PEEK Composites influenced by Cooling Rate</b>	1063
J.K. Kim and S.L. Gao	
<b>Nondestructive Evaluation of Degree of Fiber Waviness in Thick Composites</b>	1069
H.J. Chun and P.-J. Jang	
<b>The Damage Evaluation of Rigid Particle Filled Polymer</b>	1075
S. Bai, J.K. Chen, Z.P. Huang and Z.D. Liu	
<b>Microstructural Morphology of Molded Thin Composites of Thermotropic Liquid Crystalline Polymer and Polyamide 6</b>	1081
N.S. Choi and K. Takahashi	
<b>Optimization of Molding Cure Condition on Al 7075/CFRP Sandwich Composite by the Taguchi Method</b>	1087
H.K. Yoon, S.H. Lee and W.K. An	
<b>An Application of Localized Flexibility Method to Damage Identification in CFRP Laminated Plate</b>	1093
Y. Aoki and O.I. Byon(Goichi Ben)	
<b>Crush Energy Absorbing Characteristics of Graphite/Epoxy Square Tubes</b>	1099
H.C. Park, Y.H. Choi and K.J. Yoon	
<b>Surface Modification of Carbon Fibers by Anodic Oxidation and its Effect on Adhesion</b>	1105
J.R. Lee, M.H. Kim and S.J. Park	
<b>The Bridging Analysis of Dynamic Crack Propagation in Fiber Reinforced PE Pipelines</b>	1111
Z. Zhuang, S.X. Qu and Y.J. Guo	
<b>Optimum Stacking Sequence Design of Fiber-Metal Laminates for Using Genetic Algorithm</b>	1117
H.W. Nam, S.W. Jung, W. Hwang and K.S. Han	
<b>A Thermomechanical Analysis of MCM-D Substrate of Polymer and Metal Multilayer</b>	1123
J.H. Lim, J.S. Kim, K.W. Paik and Y.Y. Earmme	
<b>Failure Behavior and Electrical Property of CFRP and CFGFRP</b>	1129
D.Y. Song, J.B. Park and N. Takeda	
<b>Elastic Restraint between the Plate Components of FRP Compression Members</b>	1135
S.J. Yoon, S.K. Jeong and S.H. Chae	
<b>Mixed-Mode Ply Cracking in Multidirectional Continuous Fiber Composite Laminates</b>	1141
J.Q. Zhang, K.P. Herrmann and X.G. Zeng	
<b>Axial Crush and Energy Absorption Characteristics of Aluminum/GFRP Hybrid Square Tube</b>	1147
K.H. Kim, K.C. Shin and J.J. Lee	
<b>Mechanical Behavior of Carbon/Phenolic Ablative Composites for Nozzle Application</b>	1153
P.W. Kim, S.H. Hong, Y. Kim, B.H. Yeh and Y.G. Won	
<b>Fracture Pattern and Lamination Configuration on Flexural Fracture of Multiple Layer CFRP</b>	1159
M. Kanemitsu and H. Nakayasu	
<b>Strength Prediction of Mechanical Joints in Laminated Composite Plates</b>	1165
K.W. Lee and T.J. Kang	
<b>Crystallinity and Mechanical Properties of Glass Fiber Reinforced Thermoplastic Composites by Rapid Press Consolidation Technique</b>	1171
I.J. Shin, D.Y. Kim and D.J. Lee	
<b>Fractography of Damaged Carbon Fiber/Epoxy Composites after Low-Velocity Impact</b>	1177
M. Sohn, X.Z. Hu and J.K. Kim	
<b>Anisotropic Mechanical Behavior of Three Dimensional Glass Fabric Reinforced Composites</b>	1183
H.S. Lee, S.H. Hong, J.R. Lee and Y.K. Kim	

<b>Prediction of Compressive Strength of Stiffened Composite Plate after Impact</b>	1189
C.S. Hong, C.W. Kong and C.G. Kim	
<b>Void Nucleation Models and their Implications for the Material Behavior of Rubber-Modified Epoxies</b>	1195
H.Y. Jeong	
<b>On-line Frequency Estimation and Adaptive Vibration Control of Composite Structures with Delaminations</b>	1201
K. Rew, J.H. Han and I. Lee	
<b>Strength and Fracture of Cu-Based Filamentary Nanocomposites</b>	1207
S.I. Hong, J.H. Chung and H.S. Kim	
<b>Modeling of Thermal Shock Spalling Crack in a Ceramic Slabs</b>	1213
P. He and W.J. Clegg	
<b>Analytical Study of Prestrain Effects on Elastic Properties in Shape Memory Alloys</b>	1219
H.G. Kim, H.K. Noh, Y.T. Cho, J.Y. Kim, S.K. Park and D.J. Lee	
<b>A Study on the Friction and Wear Characteristics of Brake Pads for Al MMC Brake Disc</b>	1225
S.J. Kwon and B.C. Goo	
<b>On Targets Strength of Ceramic Materials for Impacting Penetration</b>	1231
Y. Sun, J. Ma, Y. Zhou and T. Li	
<b>Effects of Heat Treatment on Bending Strength of Aluminum Alloy Matrix Composites Reinforced Aluminum Borate Whisker</b>	1237
S. Huh, H.K. Yoon, K.H. Park and S.L. Lee	
<b>Mechanical Properties of Tungsten Fiber Reinforced Ti-6Al-4V Alloy</b>	1243
S. Nishida, K. Hayashi, N. Hattori, K. Nakano, Y. Yanagida and H. Tamasaki	
<b>Behavior of Cyclic Fatigue Crack Growth for SiC Ceramics</b>	1249
Y.H. Huh, K.J. Yoon, S.J. Cho and J.H. Song	
<b>A Model on the Strengthening and Embrittlement of Devitrified Nanocomposites</b>	1255
H.S. Kim, S.I. Hong and M. Sohn	
<b>Contact Damage Analysis of Ceramic/Metal Bilayer Composites with Various Modulus Mismatches</b>	1261
H. Zhao, X.Z. Hu and M. Bush	
<b>Abrasive Wear Behavior of Hybrid Metal Matrix Composites</b>	1267
J.I. Song, S.I. Bae, K.C. Ham and K.S. Han	
<b>Evaluation of Formability Properties of P/M Copper Preforms at Elevated Temperatures</b>	1273
T. Senthilvelan, A. Venkatraman and K. Raghukandan	
<b>Effects of Interface and Residual Stress on Mechanical Properties of Ceramic/Metal System</b>	1279
T.W. Kim and S.W. Park	
<b>Design and Fabrication of Tooling for P/M Ferrous Gears</b>	1285
A. Venkatraman and T. Senthilvelan	
<b>Effects of Sintering Conditions on Mechanical Properties of Mechanically Alloyed Tungsten Heavy Alloys</b>	1291
H.J. Ryu and S.H. Hong	
<b>Analysis of Strengthening Mechanism in Hybrid Short Fiber/Particle Reinforced Metal Matrix Composites</b>	1297
S.W. Jung, J.H. Lee, J.B. Nam, H.W. Nam and K.S. Han	
<b>Effects of Welding Process and Crack Orientation on da/dN of Titanium Alloys</b>	1303
Q.F. Li, H. Ni, S.L. Yang, Z. Cui, X.H. Peng and L.Q. Wang	
<b>Laser Welding of Ti-Ni Shape Memory Alloy Wire and its Fatigue Properties</b>	1309
Y.S. Kim and J.D. Kim	
<b>Investigation on Improving Fatigue Properties of Welded Joints by Ultrasonic Peening Method</b>	1315
L.X. Huo, D. Wang, Y.F. Zhang and J.M. Chen	
<b>The Characteristics of Fatigue Strength in Laser Tailored Welded Blanking Sheet Metal</b>	1321
T.Y. Oh, Y.K. Kwon, C.J. Lee and D.S. Kwak	
<b>Effect of the Mismatching of J-Integral for Pipe Welded Joint with Circumferential Surface Crack</b>	1327
L.X. Huo, Y.I. Liu, Y.F. Zhang and H.Y. Jing	
<b>Validation of Defect Assessment Method for Structures with Weldments</b>	1333
Y.J. Kim	

**The Use of Temper Bead Welding for the Repair of Thick Walled Pressure Vessels**

R.N. Ibrahim and T. Shehata

1339

**Welding Residual Stress Analysis and Fatigue Crack Growth Characteristics of Multi-Pass  
Welded Pipe Weldment**

C.H. Kim, D.H. Bae, S.Y. Cho and B.K. Kim

1345