

# Table of Contents

## Preface and Committees

<b>Fracture Prediction for Ultralow Carbon Steel Sheet Subjected to Draw-Bending Using Forming Limit Stress Criterion</b> C. Sekiguchi, M. Saito, T. Kuwabara and H. Fukiharuru	1
<b>Influence of Small Cavity Existing in the Vicinity of 3D Crack Front</b> M.A. Hasib and A. Saimoto	5
<b>Computation of Effective Material Properties in Smart Composite Materials by a Symmetric Galerkin BEM</b> M. Wünsche, J. Sladek, V. Sladek and S. Hreck	9
<b>Multi-Physics and Multi-Scale Deterioration Modelling of Reinforced Concrete</b> A. Michel, H. Stang, M. Lepech and M.R. Geiker	13
<b>Experimental Analysis of Ti6Al4V Orthogonal Cutting</b> A. Korlos, O. Friderikos, D. Sagris, K. David and G. Mansour	17
<b>Ductility of Ultra-High Performance Concrete and its Correlation with Tensile Strength Increase</b> B.I. Bae, H.K. Choi and C.S. Choi	21
<b>Rheological Study of the Performance and the Vulnerability of an Element of RC Structure during and after a Seismic Signal</b> A.F. Belhadj and M. Chabaat	25
<b>Experimental Tensile Tests on Bone Cement: Effect of Test Sample Shape</b> C.S. Nes, L. Bogdan and J.M. Patrascu	29
<b>On the Influence of the Contact Force and the Angle between the Wires on ACSR Conductors' Mechanical Properties and Durability</b> D. Achiriloaiei, C.S. Nes, I. Dumitru and A. Cernescu	33
<b>Light Alloys Structural Behaviour in Severe Environmental Conditions</b> S. Baragetti, R. Gerosa and F. Villa	37
<b>Evaluation of Bond Strength between Steel Fiber Reinforced Ultra-High Strength Concrete and Rebar</b> B.I. Bae, H.K. Choi and C.S. Choi	41
<b>Boundary Element Analysis of Stiffened Panels with Repair Patches</b> C. Di Pisa and M.H. Aliabadi	45
<b>Different Inclusion Contents in H13 Steel: Effects on VHCF Response of Gaussian Specimens</b> A. Tridello, D.S. Paolino, G. Chiandussi and M. Rossetto	49
<b>Mixed-Mode Crack Patterns in Ordinary State-Based Peridynamics</b> G. Sarego, M. Zaccariotto and U. Galvanetto	53
<b>Flexural Property and <i>In Situ</i> Observation of Carbon Milled Fiber Added Plain Woven Carbon Fiber/Epoxy Resin Composite</b> H. Katogi and K. Takemura	57
<b>Preparation and Characterization of Halloysite Nanocomposites by Rapid Prototyping Technology</b> W.T. Sun, H. Takagi, A.N. Nakagaito and S.H. Chiu	61
<b>A Micro-Mechanical Model for Grain-Boundary Cavitation in Polycrystalline Materials</b> V. Gulizzi, A. Milazzo and I. Benedetti	65
<b>Fatigue Resistance of Laser Welded S355 Steel Sheet</b> I. Černý, J. Sís and P. Zháňal	69
<b>High Temperature Low Cycle Fatigue Characteristics of Grit Blasted Polycrystalline Ni-Base Superalloy</b> I. Šulák, K. Obrtlík and L. Čelko	73
<b>Numerical Fracture Analysis of Compact Tension Shear (CTS) Specimens with Tortuous Crack Fronts</b> J. Horníková, S. Žák and P. Šandera	77
<b>Inelastic Dynamic Seismic Response of 15-Story and 25-Story RC Buildings with and without Shear Walls Designed with the Mexico City Building Code</b> J.A. Avila and J.A. Avila-Haro	81

<b>Effects of Fine Particle Peening on Fatigue Strength of Transformation-Induced Plasticity (TRIP)-Aided Martensitic Steel</b> K.I. Sugimoto, Y. Mizuno and T. Hojo	85
<b>Fatigue Crack Growth Behaviour of Friction Stir Welded Aluminium Alloys</b> G. Labeas and S. Peppas	89
<b>Description of Strengthening Mechanism in Layered Ceramic Composites</b> K. Štegnarová, L. Náhlík and P. Hutař	93
<b>Evaluation of <math>J</math> Integral for Interacting Twin Collinear Through-Wall Cracks in a Plate under Tension</b> M. Katinic, D. Kozak, I. Samardzic, A. Stoic, Z. Ivandic and Z. Tonkovic	97
<b>Evaluation of Defects in Adhesive Joint by Double Cantilever Beam Experiment</b> M.K. Budzik and H.M. Jensen	101
<b>Crack Bridging Modelling in Bioglass® Based Scaffolds Using Gradient Elasticity Theory</b> M. Kotoul, P. Skalka and I. Dlouhy	105
<b>Calibration Function for Fatigue Crack Propagation</b> B. Glaser, N. Gubeljak and J. Predan	109
<b>Interfaces Behavior in Glued Granular Materials</b> M. Buonsanti, F. Ceravolo, G. Leonardi and F. Scopelliti	113
<b>Crack Coalescence and Failure Patterns in Brittle Rock-Like Specimens with Pre-Existing Fissures under Uniaxial Loading: Experimental Studies</b> R.H. Cao, P. Cao and H. Lin	117
<b>Pounding between Inelastic Three-Storey Buildings under Seismic Excitations</b> R. Jankowski	121
<b>Influence of Size and Proximity of Paint Coating Defects on Corrosion Behavior of Carbon Steel Plates</b> S. Kainuma, Y.S. Jeong and J. Kobayashi	125
<b>Mechanical and Fatigue Parameters of Two Types of Alkali-Activated Concrete</b> S. Seitzl, V. Bílek, H. Šimonová and Z. Keršner	129
<b>Influence of Semi-Circular Cracks on Threaded Connection Fatigue by Means of Kitagawa-Takahashi Diagram and El Haddad Equation</b> S. Novoselac, T. Ergić, D. Kozak and A. Sedmak	133
<b>Predicting Micro-Mechanics Damage Behaviour at a Metal-Ceramic Interface in a Reinforced Alloy</b> S.A.A. Shah and S.T. Hasan	137
<b>TEM Study of Microstructure Changes, Formation and Distribution of Slip Bands in Austenitic Steels after Low-Cycle Fatigue (LCF) Deformation - II</b> T. Eterashvili, T. Dzigraşvili and M. Vardosanidze	141
<b>Deformation of Electroelastic Materials with Dispersed Microdamageability</b> D. Babich, O. Bezverkhyi and T. Dorodnykh	145
<b>Investigation on Damage Tolerance of Thick Laminate Composite Structure</b> H.B. Park	149
<b>Strength Prediction of Laminated Composites upon Independent Constituent Properties</b> Z.M. Huang and L.M. Xin	153
<b>Simulation of the Transient Behavior of Matter with Characteristic Geometrical Variations &amp; Defects Irradiated by Nanosecond Laser Pulses Using FEA</b> E. Kaselouris, E. Skarvelakis, I.K. Nikolos, G.E. Stavroulakis, Y. Orphanos, M. Bakarezos, N.A. Papadogiannis, M. Tatarakis and V. Dimitriou	157
<b>Three-Dimensional Modeling of Single-Lap Joints with Variable Interfacial Crack Length</b> S.X. Xu, Y. Zhang, M.L. Duan and B. Dai	161
<b>A Simulation Study of Surface Breaking Crack in Concrete Beam Based on Time-Reversed Theory of Surface Wave</b> Y. Yang, M.Y. Zhang, L. Xiao and W.Z. Qu	165
<b>Interfacial Fracture Strength of Micro-Scale Si/Cu Components with Different Free-Edge Shape</b> Y. Takahashi, H. Kondo, K. Aihara, M. Takuma, K. Saitoh, S. Arai, S. Muto, Y. Yamamoto, K. Higuchi and N. Tanaka	169
<b>The Role of Residual Stresses in Particulate Composite with Glass Matrix</b> Z. Majer, L. Náhlík and P. Hutař	173

<b>The Research about the Strength of Composite Riser Pipes Based on Finite Element Method</b> Y. Zhang, W.W. Gao, S.X. Xu and M.L. Duan	177
<b>Second-Order Computational Homogenization Approach Using Higher-Order Gradients at Microlevel</b> T. Lesičar, Z. Tonković and J. Sorić	181
<b>Study on the Physical Properties of Recycled Cold Asphalt Using Cementless Binders</b> B.J. Lee, J.S. Kim and Y.I. Jang	185
<b>Study on the Durability of Cementless Concrete Produced with Industrial By-Products</b> J.W. Lee, Y.I. Jang, B.J. Lee and W.S. Park	189
<b>Experimental Study on the Microstructure of Cementless Concrete through the SEM and XRD Analysis</b> Y.I. Jang, J.W. Lee, B.J. Lee, J.Y. Bae, J.S. Kim and W.S. Park	193
<b>Effect of Resin Particle on Interfacial Shear Strength of CF/MAPP after Immersion</b> T. Hara, H. Katogi and K. Takemura	197
<b>Numerical Simulation of Strain Localization of Rock-Like Material Containing Single Flaw</b> J. Jin, P. Cao, C.Z. Pu and R.Q. Hao	201
<b>The Influence of Wedge Shape on the Determination of Dynamic Fracture Toughness in SHPB Test</b> S.F. Zhu, Y. Cao, C.H. Guo and F.C. Jiang	205
<b>Unable to Detect Burial Defective Rubber Sheet in Digital Image Correlation Method</b> D.C. Li, H. Chao and Q. Jia	209
<b>Research on the Variation of Residual Stress in the Rail Caused by the Wheels Repeated Rolling</b> H. Song, J. Yang, L.B. Song, K.X. Li and W. Li	213
<b>Mechanical Properties and Corrosion Mechanism of GFRP Rebar in Alkaline Solution</b> J.Z. Mao, H.W. Zhang, J.F. Lv, D.G. Jia and S.K. Ao	217
<b>An Effect of Laser Hardening on Contact and Bending Fatigue of a 42CrMo4 Steel</b> I. Černý, I. Fürbacher, D. Mikulová and J. Sís	221
<b>Failure Susceptibility in Thin Films with Extensive Incompatibility in Thermo-Elastic Material Properties</b> I. Dobovšek	225
<b>Study of Reticulated Vitreous Carbon Foam as a Quasi-Brittle Material</b> P.J. Heard and P.E.J. Flewitt	229
<b>Effect of Voids on a Magistral Crack in Piezoelectric Brittle Materials</b> J. Sladek, V. Sladek, S. Krahulec and D.L. Young	233
<b>Damage Model for Degradation Induced by Volcanic Ash Deposition on Thermal Barrier Coatings</b> M. Arai and D. Hara	237
<b>Statistical Analysis of SHM Passive Sensing Systems</b> M. Thiene, Z. Sharif Khodaei and M.H. Aliabadi	241
<b>On the Role of Double Die Angle on the Hydrogen Embrittlement of Cold Drawn Prestressing Steel Wires</b> J. Toribio, M. Lorenzo and D. Vergara	245
<b>Uncertainty Analysis of Active SHM System</b> M. Thiene, Z. Sharif Khodaei and F. M.H. Aliabadi	249
<b>Fracture Events Localization by Numerical Simulations of Cementitious Composites</b> J. Sobek, M. Štafa and V. Veselý	253
<b>On the Validation of Williams' Stress Function for Dynamic Fracture Mechanics</b> M. Li, M. Lei, C. Shi, P.H. Wen and F. M.H. Aliabadi	257
<b>Energy Dissipation during Quasi-Brittle Fracture Associated with the Crack and the Fracture Process Zone Progression</b> J. Klon and V. Veselý	261
<b>A Dual Boundary Element Model for Electromechanical Impedance Based Damage Detection Applications</b> F. Zou and M.H. Aliabadi	265
<b>Optimal Sensor Placement for Damage Detection Based on Ultrasonic Guided Wave</b> M. Thiene, Z. Sharif-Khodaei and M.H. Aliabadi	269

<b>Application of the Nonlinear Model of a Beam for Investigation of Interlaminar Fracture Toughness of Layered Composite</b> V. Pavelko	273
<b>Numerical Investigation of a Stiffened Panel Subjected to Low Velocity Impacts</b> A. Riccio, S. Saputo, A. Sellitto, A. Raimondo and R. Ricchiuto	277
<b>Finite Element Analysis on Crack Tip Deformation Behavior under Mode-II Loading in Single Crystal Superalloy</b> Y. Mukai, H. Kagawa and M. Okazaki	281
<b>Analytical Tool for the Preliminary Design of an Adhesively Bonded T Joint</b> A. Riccio and A. Sellitto	285