Table of Contents

Preface and Organising Committee

Chapter 1: Fracture

Optimizer Optimizer	
J.F. Bai and M. Abdel Wahab	3
Optimization of Chiral Sandwich Composite Tube for Improved Structural Performance and Failure Resistance U. Hamid and M. Abdel Wahab	4
Damage Assessment of Functionally Graded Circular Plates under Low Velocity Impact I. Bozkurt and M. Abdel Wahab	5
The Critical Condition of Rupture of Deep Drawing Y.J. Guo and M. Abdel Wahab	6
Failure Mechanisms and Stress Distribution in Functionally Graded Bonded Joints: Experimental and Numerical Analysis Y.A. Zhang and M. Abdel Wahab	7
A Study on Structural Damage Identification of Track System Fasteners through Elastic Wave Propagation Characteristics P.C. Li, M. Abdel Wahab and Z.P. Zeng	9
Hybrid Blood-Sucking Leech Optimizer and Neural Networks for Structural Damage Identification: A Case Study of a Suspension Footbridge N.N. Lan, N.L. Nguyen and M. Abdel Wahab	10
An Optical Method for Heat Flux Measurements in Stagnation Point Laminar Methane/Air Flames Using Thermographic Phosphor Thin Films and the Effect of Hydrogen Addition M. Elmnefi	11
Deep Learning and Numerical Simulation Application for Dimensional Accuracy Prediction in Backward Flow Forming A.C. Kocabiçak and M. Abdel Wahab	13
Optimization of Cutting Parameters in Surface Roughness for Machining Stainless Steel Y. Şahin and A. Saygin	15
Effects of Fiber Type and Hybridization on the Tensile Properties and Fracture Behavior of Epoxy Composites Y. Şahin	18
Introduction of Crystallographic Factor into the Von Mises Equivalent Stress Calculation M. Karuskevych, T. Maslak and O. Karuskevych	21
A Novel Approach for Modelling Crack Paths in Plate Structures for Dynamic Response Analysis	
Y.L.A. Alshammari, M. Khan, F.Y. He and H.D. Kati	22
Residual Stress Analysis: An Essential Tool for Pelton Runner Lifespan Evaluation C. Seifert, S. Acuña, D. Hincapie, A.F. Duque and A. Morales-Ortiz	23
Advanced XRD Profiling of Residual Stresses in Penstock Pipelines for Enhanced Structural Integrity S. Acuña, C. Seifert, D. Hincapie, A.F. Duque and A. Morales-Ortiz	24
Effects of UV Radiation-Induced Aging on the Tensile Mechanical Behavior of Polyamide: Implications for Telecommunications and Energy Applications A. Morales-Ortiz, j. Marín, C. Quintero, J.A. Rios and T. Tamayo Marulanda	25
Comparison of Two Typical Adhesive Fracture Mechanics Considering Hygrothermal	
Aging S.Y. Li, J.W. Zhang, D. Wang, C. Li, J.W. Shi and D. Chen	26
Comparison of the Time Varying Mesh Stiffness of Gears with Single and Multi-Mode	
Damage A.G. Oreavbiere and M. Khan	29

Damage in 3D Printed Polymeric Structures: The Trade Off in Printing Parameters and Damage Resistance M. Khan	30
Transient Behavior of Imperfectly Bonded Dissimilar Piezoelectric Layers Containing Multiple Embedded Cracks under Anti-Plane Electro-Mechanical Impact	30
S.M.M. Hashemi and M. Ayatollahi	31
Research on Fracture Mechanics of Non-Reciprocal Adhesive in Composite Single-Lap Bonded Joints Based on UEL	22
X.Q. Zhang, D. Wang, J.Z. Wang, J.W. Shi and D. Chen Study on Strength Optimization of CFRP Single-Lap Joints Based on Local Pre-Curing	32
Effect	25
J.Z. Wang, D. Wang, X.Q. Zhang, J.W. Shi and D. Chen	35
Chapter 2: Fatigue	
Influence of Corrosion Environment in Coal Mine on Corrosion Damage and Bending Fatigue Life of Steel Wire Rope	41
G.F. Wang, Y.X. Peng and M. Abdel Wahab Fretting Fatigue Crack Growth Life Based on Long Short - Term Memory Networks	41
C. Wang and M. Abdel Wahab	42
Fatigue Life Evaluation of a Medium Dump Truck Frame under the Random Road Profile Excitation	42
T.D. Vu and V.T. Vu Towards a Holistic Model for Fretting Fatigue: Cause and Effect	43
D. Nowell and H. Sarwar	45
Artificial Neural Network-Based Prediction of Fretting Fatigue Crack Path B. Ahmed, C. Wang and M. Abdel Wahab	46
Influence of Contact Behavior on Fatigue Life in Fretting Fatigue of Dovetail Joints Q.Q. Xiao, C. Wang and M. Abdel Wahab	47
A Viscoplastic Finite Element Model for Irradiation Hardening of EUROFER97 J.X. Liu, X.W. Wang, A. Zinovev, D. Terentyev and M. Abdel Wahab	48
The Symbolic Regression for Predicting Fretting Fatigue Lifetime Y.X. Wu and M. Abdel Wahab	49
Experimental Study on the Fatigue Failure Mode of Adhesive-Bolt Hybrid Connection Forms of Dissimilar Materials M.P. Zheng, Z.F. Liu and M. Abdel Wahab	50
Prediction of Cyclic Softening Curves of Irradiated and Nonirradiated RAFM Steels Using	30
Physics Informed Neural Network Combined with Transfer Learning H. Zahran, A. Zinovev, D. Terentyev, A. Aouf and M. Abdel Wahab	51
Effects of Dwell Time on the Creep-Fatigue Damage Mechanisms in Nickel-Based	31
Superalloys K.F. Fan, J.B. Yan, P. Liu, L.H. Huang, Z. Yang, Y. Yuan and M. Abdel Wahab	52
Rotary Fatigue Tests on Adhesive Joints	
M.A. Martinez and J. Abenojar Transforming Fatigue Life Prediction in Additive Manufacturing: Synergies of Surrogate	53
Modeling, Transfer Learning, and Bayesian Inference M.M.M. Awd and F. Walther	54
Anisotropic Behavior on Fatigue Properties of API 5L X42 Pipeline Steel	
M.A. Beltran-Zúñiga, J.L. Gonzalez-Velázquez, D. Rivas-López, H. Dorantes-Rosales, C. Ferreira-Palma, F. Hernández-Santiago and F. Larios-Flores	55
Input Parameter Analysis for Low-Cycle Multiaxial Fatigue Models Using Artificial Neural Network	5.0
Y. Savchuk, P. Yakovhuk and S. Shukayev Fretting Fatigue and Crack Initiation Analysis of 42CrMo4+QT and 34CrNiMo6+QT Steels	56
M. Nesládek, M. Müller, V. Mára, T. Karas, J. Papuga and A. Hasse	60
Fatigue Regime Transition in Pelton Turbines: From Low-Stress/High-Cycle to High-Stress/Low-Cycle and its Impact on Structural Integrity A. Morales-Ortiz, C. Seifert, S. Acuña, A.F. Duque and D. Hincapie	62
	- ·

A. Morales-Ortiz, C. Seifert, S. Acuña, A.F. Duque and D. Hincapie	63
Chapter 3: Wear	
Prediction of Fatigue Life of Steel Wires under Fretting Wear Condition Using Linear Elastic Fracture Mechanics	
M. Imran and M. Abdel Wahab	67
Tire Rubber versus Silicone: A Comparative Study of Wear Resistance J. Abenojar, M.A. Martinez, D. García-Pozuelo, M.J.L. Boada and B.L. Boada	68
Influence of Lubricant Properties on Elastohydrodynamic Oil Film Thickness in Angular Contact Ball Bearings: A Numerical Investigation	
H. Bal	70
Optimization of Cutting Parameters on Carbon Steel Using Taguchi-Grey Relation Method Y. Şahin and M. Abdel Wahab	74