

Contents

The Optics Between Theory and Application in Arabic Golden Age . . .	1
Ahmed Djebbar	
Fatigue and Notch Mechanics	9
Bruno Atzori, Giovanni Meneghetti and Mauro Ricotta	
Experimental Disparity Analysis of the Behavior and Fatigue of the 304L Stainless Steel	25
Kada Mouedden, Adel Belattar and Lakhdar Taleb	
Numerical Investigation on the Anisotropic Behavior of an Aluminum Alloy Type 2017A	41
Mouaad Brik, Malek Chabane Chaouche and Lakhdar Taleb	
History of Microstructure Evolution and Its Effect on the Mechanical Behavior During Friction Welding for AISI 316.	51
Ammar Jabbar Hassan, Ramzi Lechelch, Taoufik Boukharouba, Djamel Miroud, Nacer-eddine Titouche and Nourdine Ouali	
A Study of Selective Laser Melting Technology on the Ultra-High Strength Tool Steel Use—Quality, Mechanical Properties and Fatigue	67
Píška Miroslav, Trubačová Pavlína, Horníková Jana, Šandera Pavel and Klas Boivie	
Transferability of Fracture Toughness with Constraint.	87
Guy Pluvinae, Julien Capelle and Mohamed Hadj Meliani	
Crack Path Stabilisation and T-Stress Estimation in Connection with the Global Approach for Inclined Notches	101
Mohammed Hadj Meliani, Omar Bouledroua, Mohamed Ould-M’beirick, Khled Elmiloudi, Mohamed Sadou and Guy Pluvinae	

Measuring of Strain and Displacements in Welded Joints Subjected to Tensile Load Using Stereometric Methods	117
Branislav Djordjevic, Simon A. Sedmak, Uros Tatic, Milos Milosevic and Filip Vucetic	
Experimental and Numerical Investigations of Friction Stir Welding of Aluminum to Copper	129
Gihad Kerrar, Nesar Merah, Abdelrahman Nasr Shuaib, Fadi AL-Badour and Abdelaziz Bazoune	
Heat-Affected Zone as Critical Location in Pressure Equipment	139
Ljubica Milović	
Mixed Mode Static and Dynamic Modeling in Fracture Mechanics for Plane Composite Materials by X-FEM.	157
Sadam Houcine Habib, Brahim Elkhail Hachi, Mohamed Guesmi and Mohamed Haboussi	
The Preheating Temperature Effects on the Residual Stresses of the Welded Rails Sections	169
Oussama Bouazaoui and Abdelkrim Chouaf	
Dynamic Analysis of Fiber Reinforced Composite Beam Containing a Transverse Crack.	179
Yassine Adjal, Rachid Benzidane and Zouaoui Sereir	
Determination of Elastic-Plastic Parameters of Inconel Arc Sprayed Coating	193
Yamina Mebdoua, Yazid Fizi and Hadj Lahmar	
Study of Noise Inside a Mechanical Shovel Cabin Using a Sound Perception Approach.	205
Nacer Hamzaoui	
Perceptual Study of Simple and Combined Gear Defects	219
Ramdane Younes, Nouredine Ouelaa, Nacer Hamzaoui and Abderrazek Djebala	
Natural Frequencies of Composite Cylindrical Helical Springs	227
Sami Ayadi and Ezzeddine Haj Taïeb	
Improvement of the Sensitivity of the Scalar Indicators Using a Denoising Method by Wavelet Transform	239
Mustapha Merzoug, Khalid Ait Shgir, Abdelhamid Miloudi and Jean Paul Dron	
Fault Diagnosis Through the Application of Cyclostationarity to Signals Measured	251
Tarek Kebabsa, Nouredine Ouelaa, Jerome Antoni, Mohamed Cherif Djamaa, Raid Khettabi and Abderrazek Djebala	

Experimental Study of Real Gear Transmission Defects Using Sound Perception	267
Nouredine Ouelaa, Ramdane Younes, Nacer Hamzaoui and Abderrazek Djebala	
Taguchi Design of Experiments for Optimization and Modeling of Surface Roughness When Dry Turning X210Cr12 Steel	275
Oussama Zerti, Mohamed Athmane Yallese, Salim Belhadi and Lakhdar Bouzid	
Study Contribution of Surface Quality Parts Machined by Turning Using Hard Materials	289
Razika Aouad and Idriss Amara	
Prediction of Cutting Tool's Optimal Lifespan Based on the Scalar Indicators and the Wavelet Multi-resolution Analysis	299
Mohamed Khemissi Babouri, Nouredine Ouelaa, Abderrazek Djebala, Mohamed Cherif Djamaa and Septi Boucherit	
Diffusion Modelling of Composite with Permeable Fiber	311
Djelloul Gueribiz, Frédéric Jacquemin, Hocine Bourenane and Silvain Fréour	
Elastic Buckling at the Scale of a Bone Trabecula: The Influence of the Boundary Conditions	323
Hamza Bennaceur, Salah Ramtani and Toufik Outtas	
Dynamic Characterization of MR Damper and Experimental Adjustment of Numerical Model	331
Said Boukerroum and Nacer Hamzaoui	
Evaluation of Nonlinear Seismic Response of Reinforced Concrete Structures	345
Samira Bouyakoub and Taïeb Branci	
A Finite Element Approach for Predicting the Flexural Response of Light Weight FRP-Concrete Beams Under Cyclic Loading	355
Abdelmadjid Si Salem, Souad Ait Taleb and Kamal Ait Tahar	
Study of Composite with Metallic Matrix WC/W₂C–20W–20Ni Realized by Spontaneous Infiltration of the Bronze Alloy Cu–30Mn–3P	365
Mokrane Gousmine, Djamel Miroud, Mohamed Farid Benlamnouar, Boualeme Demri and Abderrahmane Younes	
Investigations on the Residual Shear Properties of a Composite Subjected to Impact Fatigue Loading.	375
Said Mouhoubi and Krimo Azouaoui	

Development of a Reliability-Mechanical: Numerical Model of Mechanical Behavior of a Multilayer Composite Plate	387
Abdelhakim Maizia, Abdelkader Hocine, Hocine Dehmous and David Chapelle	
Analysis of Deflection in Isotropic and Orthotropic Rectangular Plates with Central Opening Under Transverse Static Loading	399
Ahmed Abdelatif Bouzgou, Abdelouahab Tati and Abdelhak Khechai	
Diffusive Behavior in Polymer-Local Organommodified Clay Matrix	411
Ali Makhloufi, Djelloul Gueribiz, Djamel Boutassouna, Frédéric Jacquemin and Mustapha Zaoui	
Effect of Grain Size of Nano Composite on Raman and Magnetic Proprieties	425
Abderrahmane Younes, Nacer Eddine Bacha, Mourad Zergoug, Mokrane Gousmine, Heider Dehdouh and Amirouche Bouamer	
Finite Element Based on Layerwise Approach for Static and Dynamic Analysis of Multi-layered Sandwich Plates	435
Mohamed-Ouejdi Belarbi, Abdelouahab Tati, Houdayfa Ounis and Abdelhak Khechai	
Tool Life Evaluation of Cutting Materials in Turning of X20Cr13 Stainless Steel.	447
Lakhdar Bouzid, Mohamed Athmane Yallese, Salim Belhadi and Lakhdar Boulanour	
Importance of Physical Modeling for Simulations of Turbulent Reactive Flows	453
Vincent Robin, Michel Champion, Arnaud Mura and Q.N. Kim Kha	
Influence of Diverging Section Length on the Supersonic Jet Delivered from Micro-nozzle: Application to Cold Spray Coating Process	465
Abderrahmane Belbaki and Yamina Mebdoua-Lahmar	
Turbulent Combustion Modeling in Compression Ignition Engines	475
Mohamed Bencherif, Rachid Sahnoun and Abdelkrim Liazid	
On the Thermal Characterization of a Fire Induced Smoke-Layer in Semi-confined Compartments	491
Abdallah Benarous, Souhila Agred, Larbi Loukarfi and Abdelkrim Liazid	
Numerical Study of Twin-Jets Impinging Against a Smooth and Flat Surface	503
Rachid Sahnoun and Abdelkrim Liazid	

Heat and Mass Transfer into a Porous Annulus Found Between Two Horizontal Concentric Circular Cylinders	511
Karim Ragui, Abdelkader Boutra, Rachid Bennacer and Youb Khaled Benkahla	
Heat and Mass Transfer in the Growth of Titanium Doped Sapphire Material with the μ-PD Technique	523
Hanane Azoui, Abdellah Laidoune, Djamel Haddad and Derradji Bahloul	
Cooperating Double Diffusion Natural Convection in a Square Enclosure with Partially Active Vertical Wall.	535
Abdennacer Belazizia, Smail Benissaad and Said Abboudi	
Increased Risk of Accidents Due to Human Behavior	551
Martina J. Mazankova	
Statistic of Police of Czech Republic Influence on Risk Assessment of Road Traffic	561
Martina J. Mazankova	
Author Index	569

Applied Mechanics, Behavior of Materials, and
Engineering Systems

Selected contributions to the 5th Algerian Congress of
Mechanics, CAM2015, El-Oued, Algeria, October 25 – 29

Boukharouba, T.; Pluinage, G.; Azouaoui, K. (Eds.)

2017, XIII, 570 p. 359 illus., 252 illus. in color.,

Hardcover

ISBN: 978-3-319-41467-6