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Titolo	Applied Mechanics, Behavior of Materials, and Engineering Systems : Selected contributions to the 5th Algerian Congress of Mechanics, CAM2015, El-Oued, Algeria, October 25 – 29 // edited by Taoufik Boukharouba, Guy Pluinage, Krimo Azouaoui
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Collana	Lecture Notes in Mechanical Engineering, , 2195-4364
Disciplina	620
Soggetti	Machinery Multibody systems Vibration Mechanics, Applied Materials - Analysis Security systems Machinery and Machine Elements Multibody Systems and Mechanical Vibrations Characterization and Analytical Technique Security Science and Technology
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Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	The Optics Between Theory and Application in Arabic Golden Age -- Fatigue and Notch Mechanics -- Experimental Disparity Analysis of the Behavior and Fatigue of the 304L Stainless Steel -- Numerical Investigation on the Anisotropic Behavior of an Aluminum Alloy Type 2017A.-History of Microstructure Evolution and its Effect on the Mechanical Behavior During Friction Welding for AISI 316 -- A Study of Selective Laser Melting Technology on the Ultra-High Strength Tool Steel Use – Quality, Mechanical Properties and Fatigue -- Transferability of Fracture Toughness With Constraint -- Crack Path Stabilisation and T-Stress Estimation in Connection With the Global Approach for Inclined Notches -- Measuring of Strain and Displacements in Welded

Joint Subjected to Tensile Load Using Stereometric Methods -- Experimental and Numerical Investigations of Friction Stir Welding of Aluminum to Copper -- Heat-Affected Zone as Critical Location in Pressure Equipment.-Mixed Mode Static and Dynamic Modeling in Fracture Mechanics for Plane Composite Materials by X-FEM.-The Preheating Temperature Effects on the Residual Stresses of the Welded Rails Sections -- Dynamic Analysis of Fiber Reinforced Composite Beam Containing a Transverse Crack.-Determination of Elastic-Plastic Parameters of Inconel Arc Sprayed Coating.-Study of Noise Inside a Mechanical Shovel Cabin Using a Sound Perception Approach -- Perceptual Study of Simple and Combined Gear Defects -- Natural Frequencies of Composite Cylindrical Helical Springs -- Improvement of the Sensitivity of the Scalar Indicators Using a Denoising Method by Wavelet Transform -- Fault Diagnosis Through the Application of Cyclostationarity to Signals Measured -- Experimental Study of Real Gear Transmission Defects Using Sound Perception -- Taguchi Design of Experiments for Optimization and Modeling of Surface Roughness when Dry Turning X210Cr12 Steel -- Study Contribution of Surface Quality Parts Machined by Turning Using Hard Materials -- Prediction of Cutting Tool's Optimal Lifespan Based on the Scalar Indicators and the Wavelet Multi-Resolution Analysis -- Diffusion Modelling of Composite With Permeable Fiber.-Elastic Buckling at the Scale of a Bone Trabecula: The Influence of the Boundary Conditions -- Dynamic Characterization of MR Damper and Experimental Adjustment of Numerical Model -- Evaluation of Nonlinear Seismic Response of Reinforced Concrete Structures.-A Finite Element Approach for Predicting the Flexural Response of Light Weight FRP-Concrete Beams Under Cyclic Loading -- Study of Composite With Metallic Matrix WC/W2C-20W-20Ni Realized by Spontaneous Infiltration of the Bronze Alloy Cu-30Mn-3P.-Investigations on the Residual Shear Properties of a Composite Subjected to Impact Fatigue Loading -- Development of a Reliability-Mechanical: Numerical Model of Mechanical Behavior of a Multilayer Composite Plate -- Analysis of Deflection in Isotropic and Orthotropic Rectangular Plates with Central Opening under Transverse Static Loading -- Diffusive Behavior in Polymer-Local Organomodified Clay Matrix.-Effect of Grain Size of Nano Composite in Optical and Magnetic Properties -- Finite Element Based on Layerwise Approach for Static and Dynamic Analysis of Multi-Layered Sandwich Plates -- Tool Life Evaluation of Cutting Materials in Turning of X20Cr13 Stainless Steel -- Importance of Physical Modeling for Simulations of Turbulent Reactive Flows -- Influence of Diverging Section Length on the Supersonic Jet Delivered From Micro-Nozzle: Application to Cold Spray Coating Process -- Turbulent Combustion Modeling in Compression Ignition Engines -- On the Thermal Characterization of a Fire Induced Smoke-Layer in Semi- Confined Compartments.

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## Sommario/riassunto

This book covers a variety of topics in mechanics, with a special emphasis on material mechanics. It reports on fracture mechanics, fatigue of materials, stress-strain behaviours, as well as transferability problems and constraint effects in fracture mechanics. It covers different kind of materials, from metallic materials such as ferritic and austenitic steels, to composites, concrete, polymers and nanomaterials. Additional topics include heat transfer, quality control and reliability of structures and components. Furthermore, the book gives particular attention to new welding technologies such as STIR welding and spray metal coating, and to novel methods for quality control, such as Taguchi design, fault diagnosis and wavelet analysis. Based on the 2015 edition of the Algerian Congress of Mechanics (Congrès Algérien de Mécanique, CAM), the book also covers energetics, in terms of

simulation of turbulent reactive flow, behaviour of supersonic jet, turbulent combustion, fire induced smoke layer, and heat and mass transfer, as well as important concepts related to human reliability and safety of components and structures. All in all, the book represents a complete, practice-oriented reference guide for both academic and professionals in the field of mechanics.

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