

1.	Record Nr.	UNINA990003707690403321
	Autore	Helmberger, Peter G.
	Titolo	The economics of agricultural prices / Peter G. Helmberger, Jean-Paul Chavas
	Pubbl/distr/stampa	New Jersey : Prentice Hall, c1996
	ISBN	0133726401
	Descrizione fisica	256 p. ; 23 cm
	Locazione	DECTS
	Collocazione	Q1.104
	Lingua di pubblicazione	Italiano
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
2.	Record Nr.	UNINA9910736989803321
	Autore	Indeitsev D. A
	Titolo	Advanced Problem in Mechanics III : Proceedings of the XLIX International Summer School-Conference "Advanced Problems in Mechanics", 2021, St. Petersburg, Russia // edited by D. A. Indeitsev, A. M. Krivtsov
	Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2023
	ISBN	9783031372469 3031372468
	Edizione	[1st ed. 2023.]
	Descrizione fisica	1 online resource (443 pages)
	Collana	Lecture Notes in Mechanical Engineering, , 2195-4364
	Altri autori (Persone)	KrivtsovA. M
	Disciplina	531
	Soggetti	Mechanics, Applied Multibody systems Vibration Tribology Engineering Mechanics Multibody Systems and Mechanical Vibrations
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa

Intro -- Organisation -- Preface -- Contents -- Complex Media: Micropolar Theory, Chemomechanics, Acoustic Metamaterials etc. -- Moment-Membrane Dynamic Theory of Elastic Thin Shells and Variational Principles -- 1 Introduction -- 2 Basic Equations and Relations of the Three-Dimensional Moment Dynamic Theory of Elasticity with Independent Fields of Displacements and Rotations -- 3 Basic Hypotheses Displacements and Rotation Deformations and Bending-Torsions, Stresses and Moment Stresses -- 4 General Variational Principle of Hu-Washizu Type Basic Equations and Boundary Conditions of the Moment-Membrane Dynamic Theory of Elastic Thin Shells -- 5 The Virtual Work Principle and the Basic Energy Equality of the Moment-Membrane Dynamic Theory of Elastic Thin Shells -- 6 A Case When the Causes of Deformation and Motion of the Shell Change Harmonically in Time -- 7 The Principle of Hamilton's Type in the Moment-Membrane Dynamic Theory of Elastic Thin Shells -- References -- Fluid Mechanics -- Effect of Thermal Wall Boundary Conditions on a Viscous Fluid Flow Through an Abrupt Contraction -- 1 Introduction -- 2 Problem Formulation -- 3 Numerical Method and Verification -- 4 Results and Discussion -- 5 Conclusion -- References -- Study on Application of Tangential Jet Blowing on Adaptive High-Lift Wing -- 1 Introduction -- 2 Geometry, Calculation Grid and Boundary Conditions -- 3 Calculation Results and Discussion -- 4 Conclusion -- References -- Numerical Study of the Deformable Particle Dynamics in Microchannel with Hydrodynamic Traps -- 1 Introduction -- 2 Problem Statement and Numerical Approach -- 3 Results and Discussion -- 4 Conclusions -- References -- The Algorithm of the Path Length Optimization on the Polyhedron Surface -- 1 Introduction -- 2 The Dijkstra's Algorithm -- 2.1 Brief History of the Dijkstra's Algorithm. -- 2.2 The Dijkstra's Algorithm Description -- 2.3 The Dijkstra's Algorithm as the Zeroth Step of Pathfinding -- 3 Path Optimization -- 3.1 Algorithm Description -- 3.2 The Sequential Layout Algorithm -- 4 The Shortest Path Determination -- 4.1 The Path Layout -- 4.2 The Path Straightening Algorithm -- 5 Conclusion -- References -- Barnes-Hut/Multipole Fast Algorithm in Lagrangian Vortex Method -- 1 Introduction -- 2 The Barnes-Hut/Multipole Algorithm -- 2.1 Main Idea of the Modification -- 2.2 Formulae for Numerical Calculations -- 2.3 Algorithm -- 3 Numerical Experiment -- 3.1 Accuracy Investigation -- 3.2 Complexity Investigation -- 3.3 Comparison with the FMM -- 4 Conclusion -- References -- Heat Transfer and Wave Motion -- Simulation of a Detonation Engine on an Acetylene-Oxygen Mixture -- 1 Introduction -- 2 Mathematical Model -- 3 Boundary Conditions -- 4 Kinetic Mechanism -- 5 Setting a Model Problem -- 6 Results -- 7 Conclusions -- References -- Feedforward Optimal Control with Constraints for a Cylindrical Thermoelectric System Actuated by a Peltier Element -- 1 Introduction -- 2 Model of a Thermoelectric Converter -- 3 Feedback Linearization and Order Reduction -- 4 Optimal Control Problem -- 4.1 Steady State Temperature -- 4.2 Cost Functional -- 4.3 Constrained Control and Penalty Functional -- 4.4 Optimal Control Problem and Five-Stage Optimal Forward Control -- 5 Numerical Results -- 6 Conclusions and Outlook -- References -- Nano-, Micro- and Mesomechanics -- Modeling of Domain Structure Evolution in Ferroelectroelastic Crystals Under Cyclic Loading -- 1 Introduction -- 2 Constitutive Equations for Micromechanical Model --

3 Domain Structures -- 4 Boundary Value Problem for Representative Volume Element -- 5 Numerical Results -- 5.1 Domain Wall Motion -- 5.2 Hysteresis Simulation.

5.3 Hysteresis Behavior Dependence Upon the Microstructure -- 6 Conclusion -- References -- Solids and Structures -- Accounting

for the Skin Effect in Hydrogen-Charged Samples in the HEDE Model of Cracking -- 1 Introduction -- 2 The HEDE Model -- 2.1 Description of the Numerical Method -- 2.2 Initial Conditions and Parameters of the Model -- 3 Simulation Results -- 4 Discussion -- 5 Conclusions

-- References -- Equal-strength Design of Axially Symmetric Thin-Walled Shell Moving in Deformed Media -- 1 Introduction -- 2 Some Basic Relations -- 3 Search for Velocity v and Acceleration w -- 4 Finding the Membrane Tensions -- 5 Equal-strength Design -- 6 Some Notes and Conclusions -- References -- Numerical Aspects of the J-Integral Estimation for Thermomechanical Loading -- 1 Introduction -- 2 Fracture Mechanics Equations -- 3 Numerical Methods of the J-integral Computation -- 4 Generalized Griffith's Problem -- 4.1

Problem Statement -- 4.2 Finite Element Formulation -- 4.3 Results --

5 Generalized Wilson's Problem -- 5.1 Problem Statement and FE Formulation -- 5.2 Results -- 6 Conclusions -- References -- Wear Resistance of Fe66Cr10Nb5B19 Coatings Obtained by Detonation Spraying at Different Explosive Charges -- 1 Introduction -- 2

Materials and Methods -- 3 Results and Discussion -- 4 Conclusions -- References -- On the Lifetime of Spherical Vessels Subjected to Mechanochemical Corrosion and Temperature Difference -- 1

Introduction -- 2 Formulation of the Problem -- 3 Solution of the Problem -- 3.1 Exact Solution -- 3.2 Approximate Solution -- 4

Computational Results -- 4.1 Effect of Different Temperatures on the Vessel Lifetime -- 4.2 Change of the Stresses During the Corrosion Process -- 4.3 On the Error of the Approximate Solution -- 5 Conclusion -- References.

Exact and Approximate Solutions of the Modified System of Interrelated Kinetic Equations for Damage Parameter and Creep Deformation -- 1

Introduction -- 2 Modified Version of the Kachanov-Rabotnov System of Kinetic Equations -- 3 Comparison of the Obtained Solutions with Experimental Results -- 4 Conclusions -- References -- Using of Modified Maxwell Equation to Describe Experimental Creep Curves of Carbon Fiber Reinforced Plastic Composites After Aging -- 1

Introduction -- 2 Materials and Methods -- 3 The Influence of Climatic, Thermal and Deformation Aging on Creep Strain of CFRP Composite Specimens -- 4 Using the Maxwell Model, Written in the Effective Time Scale to Describe the Experimental Creep Curves -- 5 Conclusions -- References -- Residual Stresses in a Thermo-viscoelastic Additively Manufactured Cylinder Subjected to Induction Heating -- 1

Introduction -- 2 Mathematical Modeling for the Growing Process -- 3 Initial-Boundary Value Problems of the Process -- 3.1 The Heat Source --

3.2 Heat Transfer -- 3.3 Stress-Strain Problem -- 4 The Fully

Coupled Analysis -- 5 Computational Analysis and Discussion --

References -- Mechanical and Civil Engineering Applications --

Influence of Aero-thermoacoustic Treatment on the Characteristics of Casting Aluminum Alloys -- 1 Introduction -- 2 Material

and Research Technique -- 2.1 Research Material -- 2.2 Experimental

Technique -- 3 Experimental Results and Discussion -- 3.1 Influence

of Aero-thermoacoustic Treatment on Cast Aluminum Alloys -- 3.2

Quality Assessment of Aluminum Alloys Subjected to Aero-

thermoacoustic Treatment -- 4 Conclusion -- References --

Insectomorphic Robot Rescue from an Emergency on the Back Under the Interference of Influence -- 1 Introduction -- 2 Formulation of the

Model Problem -- 2.1 Rocking the Robot on Its Back -- 3 Computer Simulation -- 4 Conclusion -- References.

Stability, Instability Study and Control of Autonomous Dynamical Systems Based on Divergence Method -- 1 Introduction -- 2 Instability Conditions -- 3 Extension of Bendixson and Bendixson-Dulac Theorems to n-Dimensional Systems -- 4 Stability Conditions -- 4.1 Stability of Linear Systems -- 5 Control Law Design -- 6 Conclusions -- References -- Vibration in Science and Technology -- Energy-Optimal Control by Boundary Forces for Longitudinal Vibrations of an Elastic Rod -- 1 Introduction -- 2 Statement of the Control Problem -- 3 Solution Algorithm -- 4 Numerical Results -- 5 Conclusions -- References -- Self-synchronization of Inertial Vibration Exciters in a System with an Elastic Limiter -- 1 Introduction -- 2 Design Scheme and Mathematical Model of the Machine -- 3 Numerical Simulation Results -- 4 Conclusion -- References -- Modelling the Dynamics of a Large-Scale Industrial Manipulator for Precision Control -- 1 Introduction -- 2 Analysis of the Vertical Actuation Phase -- 3 Analysis of Horizontal Actuation Defined by 2 Degrees of Freedom -- 4 Analysis of Horizontal Actuation Defined by 1 Degree of Freedom -- 5 Results -- 6 Reduced Order Modelling for Nonlinear Control Implementation -- 7 Conclusions -- References -- The Effect of Hydrogen Embrittlement on the Torsional Oscillations of the Pipe as a Multilayer Shell -- 1 Introduction -- 2 The Statement of the Problem -- 2.1 The Kirchhoff-Love (KL) Shell Model -- 2.2 Model of the Shell as a Three-Dimensional Body -- 2.3 The Two-Layer Cylindrical Shell -- 2.4 Cylindrical Shell with Exponential Dependence of Young's Modulus on Thickness -- 3 Numerical Results and Their Analysis -- 3.1 Double-Layer Shell -- 3.2 Calculation of the Shell Weakened by Hydrogen -- 4 Conclusions -- References -- Minisymposium on Biomechanics.

Wireless ECG Monitoring Device with the Ability to Collect and Analyze the Received Data.

Sommario/riassunto

This book focuses on original theories and approaches in the field of mechanics. It reports on both theoretical and applied researches, with a special emphasis on problems and solutions at the interfaces of mechanics and other research areas. The respective chapters highlight cutting-edge works fostering development in fields such as micro- and nanomechanics, material science, physics of solid states, molecular physics, astrophysics, and many others. Special attention has been given to outstanding research conducted by young scientists from all over the world. This book is based on the 49th edition of the international conference "Advanced Problems in Mechanics", which was held on June 21-25, 2021, in St. Petersburg, Russia, and co-organized by The Peter the Great St. Petersburg Polytechnic University and the Institute for Problems in Mechanical Engineering of the Russian Academy of Sciences, under the patronage of the Russian Academy of Sciences. It provides researchers and graduate students with an extensive overview of the latest research and a source of inspiration for future developments and collaborations in mechanics and related fields.