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Nota di contenuto	Intro -- Preface -- Organization -- Contents - Part I -- Computational Methods, Algorithms and Scientific Applications -- A Nonlinear Multiscale Viscosity Method to Solve Compressible Flow Problems -- 1 Introduction -- 2 Governing Equations and Variational Multiscale Formulation -- 3 Numerical Experiments -- 3.1 2D Oblique Shock Problem -- 3.2 2D Reflected Shock Problem -- 3.3 2D Explosion Problem -- 4 Conclusions -- References -- "Extended Cross-Product" and Solution of a Linear System of Equations -- Abstract -- 1 Introduction -- 2 Extended Cross Product -- 3 Projective Representation and Duality Principle -- 3.1 Projective Representation -- 3.2 Principle of Duality -- 4 Solution of Ax = B -- 5 Solution of Ax = 0 -- 6 Solution Ax = b and Ax = 0 -- 7 Barycentric Coordinates Computation -- 8 Intersection of Two Planes -- 9 Closest Point on the Line Given as an Intersection of Two Planes -- 10 Symbolic Manipulations -- 11 Example of Application -- 12 Efficiency of Computation and GPU Code -- 13 GPU Code -- 14 Conclusion -- Acknowledgment -- References -- Dynamical Behavior of a Cooperation Model with Allee Effect -- 1 Introduction -- 2 Analysis of Model (1) -- 2.1 Fixed Points and Their Stability -- 2.2 Stability via Lyapunov Function -- 3 Numerical Simulations of Model (1) -- 3.1 Phase Plane Diagrams -- 3.2 Time Series Diagrams -- 3.3 Basin of Attraction -- 4 Analysis of Model (2) -- 4.1 Fixed Points and Their Stability -- 4.2 Stability via Lyapunov Function -- 5 Numerical Simulations of Model (2) -- 5.1 Phase Plane Diagrams -- 5.2 Time Series Diagrams -- 5.3 Basin of Attraction -- 6 Conclusion -- References -- Stability of a Certain 2-Dimensional Map with Cobweb Diagram -- 1 Introduction -- 1.1 A Root Finding Algorithm -- 2 Stability of System () -- 2.1 Dynamics of System () in a Rectangular Region. 2.2 Stability of System () with Cobweb Diagram -- 3 Conclusions -- A Related Lemmas/Theorems -- References -- A New Heuristic for Bandwidth and Profile Reductions of Matrices Using a Self-organizing Map -- 1 Introduction -- 2 Self-organizing Map with Winner-takes-most Approach -- 3 Self-organizing Map Applied to Bandwidth and Profile Reductions -- 4 Description of Tests -- 5 Results and Analysis -- 5.1 Tests with the Harwell-Boeing Sparse Matrix Collection -- 5.2 Simulations with Linear Systems Originated from Discretization of the Heat Conduction Equation by Finite Volumes -- 5.3 Simulations with Linear Systems Arising from the Discretization of the Laplace Equation by Finite Volumes -- 6 Conclusions -- References -- Modeling Combustions: The ab initio Treatment of the O(3P) + CH3OH Reaction -- 1 Introduction -- 2 Ab Initio Calculations of the Molecular Geometries and Energies -- 3 The Fitting of the Potential Energy Surface -- 4 Dynamical Calculations and Probabilities -- 5 Conclusions -- References -- Point Placement in an Inexact Model with Applications -- 1 Introduction -- 2 The Distance Geometry Approach -- 2.1 Algorithm DGPL -- 2.2 Simulating DGPL -- 3 Mumey's Approach to the Probe Location Problem -- 3.1 Overview of Mumey's Algorithm -- 4 Experimental Results -- 5 Three Dimensional Embedding -- 6 Conclusions -- References -- Development and Validation of a Logistic Regression Model to Estimate the Risk of WMSDs in Portuguese Home

Care Nurses -- 1 Introduction -- 2 Problem Description -- 3 Model Development -- 3.1 Sample Size Considerations -- 4 Model Validation -- 5 Materials and Methods -- 6 Results -- 7 Conclusion -- References -- Analytical Spatial-Angular Structure of Uniform Slab Radiation Fields for Strongly Elongated Phase Functions -- Abstract -- 1 Introduction. 2 New Integral Equations for Upgoing and Downgoing Intensities of Inner Radiation Fields -- 3 Fitting Analytical Approximations for Upgoing and Downgoing Intensities of Radiation Fields -- 4 Results of Auxiliary Functions and Slab's Brightness Coefficients Numerical Modelling -- 5 Conclusion -- References -- Acetone Clusters Molecular Dynamics Using a Semiempirical Intermolecular Potential -- 1 Introduction -- 2 Potential Energy Surface -- 3 The Simulation Protocol of the Molecular Dynamics -- 4 The (CH3-CO-CH3)2 and (CH3-CO-CH3)3 Small Aggregates -- 5 Conclusions -- References -- Cumulative Updating of Network Reliability with Diameter Constraint and Network Topology Optimization -- 1 Introduction -- 2 Problem Statement -- 3 Brief Survey of Exact Methods for Network Reliability Calculation -- 4 Cumulative Updating of Network Reliability -- 5 Genetic Algorithm -- 6 Artificial Immune System -- 7 Case Studies -- 8 Conclusion -- References -- Set Covering Problem Resolution by Biogeography-Based Optimization Algorithm -- 1 Introduction -- 2 Set Covering Problem -- 2.1 Formal Definition -- 3 Biogeography-Based Optimization Algorithm -- 3.1 Migration Operator -- 3.2 Mutation Operator -- 3.3 Algorithm Description -- 4 Biogeography-Based Optimization Algorithm for the SCP -- 4.1 General Considerations -- 4.2 Fitness -- 4.3 Repair Infeasible Solutions -- 4.4 Delete Redundant Columns -- 4.5 Optimize Stagnation in Local Optimum -- 5 Experiments and Results -- 6 Conclusion -- References -- Finding Solutions of the Set Covering Problem with an Artificial Fish Swarm Algorithm Optimization -- 1 Introduction -- 2 Set Covering Problem -- 2.1 How Has It Been Solved Before? -- 2.2 Metaheuristics that Have Solved SCP -- 2.3 Metaheuristics, Bio-Inspired and AFSA -- 3 Artificial Fish Swarm Algorithm -- 3.1 Main Behaviors of AFSA -- 3.2 Another Description of AFSA.
3.3 Proposed Algorithm of AFSA Binary Version -- 4 Artificial Fish Swarm Algorithm and Its Simplified Binary Version -- 4.1 Features that Were Modified in AFSA -- 4.2 Initialization of Population -- 4.3 Generation of Trial Population -- 4.4 The Effect-Based Crossover in Simplified Binary Version of AFSA -- 4.5 Deal with Constraints of SCP -- 4.6 Selection of New Population -- 4.7 Reinitialization of Current Population -- 4.8 Exploitation or Local Search -- 4.9 Conditions to Finish the Algorithm -- 4.10 AFSA-SCP Proposed Algorithm -- 5 Experimental Results -- 6 Conclusions -- References -- Linear Programming in a Multi-Criteria Model for Real Estate Appraisal -- Abstract -- 1 Introduction -- 2 The Mathematical Formalism of the Model -- 3 The Case Study -- 4 The Results -- 5 Conclusion -- References -- A Prioritisation Model Aiding for the Solution of Illegal Buildings Problem -- Abstract -- 1 Introduction -- 2 The Problem of Illegal Buildings in Italy -- 3 The Management of Illegal Building Activity in Italy -- 4 Assigning an Order of Precedence on Demolition of Illegal Building Works -- 5 The Assessment Points of View -- 6 Choice of the Evaluation Aggregation Procedure -- 7 The TOPSIS Method -- 7.1 Literary Review -- 7.2 Basic Concepts and Features -- 7.3 The Aggregative Procedure -- 8 Weights Elicitation -- 9 Verification of the Assessment Model -- 10 Concluding Remarks -- References -- Solving the Set Covering Problem with a Binary Black Hole Inspired Algorithm -- 1 Introduction -- 2 Conceptual Context -- 2.1 SCP Explanation and Detail -- 2.2 Black Holes -- 3 Algorithm -- 3.1 Big Bang -- 3.2 Fitness

Evaluation -- 3.3 Rotation Operator -- 3.4 Collapse into the Black Hole -- 3.5 Implementation -- 3.6 Feasibility and Unfeasibility -- 3.7 Event Horizon -- 4 Experimental Results -- 5 Analysis and Conclusions -- References.
Solving Biobjective Set Covering Problem Using Binary Cat Swarm Optimization Algorithm -- 1 Introduction -- 2 Basic Concepts -- 2.1 Swarm Intelligent -- 2.2 Multi Objective -- 2.3 Pareto Dominance -- 2.4 Hypervolume -- 3 Set Covering Problem -- 4 Cat Swarm Optimization CSO -- 4.1 Basic Concepts -- 4.2 Parameters Important -- 4.3 Description of Cat Swarm Optimization - Main Algorithm -- 4.4 Seeking Mode -- 4.5 Tracing Mode -- 5 The Execution of the Algorithm -- 6 Experimental Results -- 7 Conclusion and Future Work -- References -- An Accelerated Multistart Derivative-Free Framework for the Beam Angle Optimization Problem in IMRT -- 1 Introduction -- 2 Multistart Derivative-Free Framework for BAO -- 2.1 BAO Formulation -- 2.2 FMO for an Intra-cranial Tumor Case -- 2.3 Multistart Approach for the Continuous BAO Problem -- 3 Computational Results -- 4 Conclusions and Future Work -- References -- Collisional Energy Exchange in CO2--N2 Gaseous Mixtures -- 1 Introduction -- 2 Intermolecular Interactions by the Bond-Bond Approach -- 2.1 Extension of the Bond-Bond Model -- 3 Molecular Dynamics Simulations -- 4 Conclusions -- References -- A Theoretical and Computational Approach to a Semi-classical Model for Electron Spectroscopy Calculations in Collisional Autoionization Processes -- Abstract -- 1 Introduction -- 2 Experimental -- 3 A New Semi-classical Computational Approach for the Electron Kinetic Energy Spectra Calculation -- 4 Conclusions -- Acknowledgments -- References -- Solving Set Covering Problem with Fireworks Explosion -- 1 Introduction -- 2 Set Covering Problem -- 3 Fireworks Algorithm -- 3.1 Components of FWA -- 4 Binary Firework Algorithm -- 5 Solving the Set Covering Problem -- 6 Result -- 7 Conclusions -- References -- Simulation of Space Charge Dynamics in High Intensive Beams on Hybrid Systems -- 1 Introduction.
2 Lie Algebra in Accelerator Physics.

Sommario/riassunto

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