1. Record Nr.   UNISA996466272803316

   Titolo   Computer Algebra in Scientific Computing [[electronic resource]] : 18th
                     International Workshop, CASC 2016, Bucharest, Romania, September
                     19-23, 2016, Proceedings / / edited by Vladimir P. Gerdt, Wolfram
                     Koepf, Werner M. Seiler, Evgenii V. Vorozhtsov

   Pubbl/distr/stampa Cham : , : Springer International Publishing : , : Imprint : Springer, ,
                     2016

   ISBN   3-319-45641-5

   Edizione   [1st ed. 2016.]

   Descrizione fisica 1 online resource (XIII, 513 p. 61 illus.)

   Collana   Theoretical Computer Science and General Issues, , 2512-2029 ; ; 9890

   Disciplina   004.0151

   Soggetti   Algorithms
                     Computer science—Mathematics
                     Discrete mathematics
                     Computer simulation
                     Numerical analysis
                     Computer arithmetic and logic units
                     Discrete Mathematics in Computer Science
                     Symbolic and Algebraic Manipulation
                     Computer Modelling
                     Numerical Analysis
                     Arithmetic and Logic Structures

   Lingua di pubblicazione Inglese

   Formato   Materiale a stampa

   Livello bibliografico Monografia

   Note generali   Includes index.

   Nota di contenuto On the Differential and Full Algebraic Complexities of Operator
                     Matrices Transformations -- Resolving Decompositions for Polynomial
                     Modules -- Setup of Order Conditions for Splitting Methods --
                     Symbolic Manipulation of Flows of Nonlinear Evolution Equations, with
                     Application in the Analysis of Split-Step Time Integrators -- Improved
                     Computation of Involutive Bases -- Computing all Space Curve
                     Solutions of Polynomial Systems by Polyhedral Methods -- Algorithmic
                     Computation of Polynomial Amoebas -- Sparse Gaussian Elimination
                     Modulo p: an Update -- MathCheck2: A SAT+CAS Verifier for
                     Combinatorial Conjectures -- Incompleteness, Undecidability and

Automated Proofs (Invited Talk) -- A Numerical Method for Computing Border Curves of Bi-Parametric Real Polynomial Systems and Applications -- The Complexity of Cylindrical Algebraic Decomposition with Respect to Polynomial Degree -- Efficient Simplification Techniques for Special Real Quantifier Elimination with Applications to the Synthesis of Optimal Numerical Algorithms -- Symbolic-Numeric Algorithms for Solving BVPs for a System of ODEs of the Second Order: Multichannel Scattering and Eigenvalue Problems -- Symbolic Algorithm for Generating Irreducible Rotational-Vibrational Bases of Point Groups -- A Symbolic Investigation of the Influence of Aerodynamic Forces on Satellite Equilibria -- Computer Algebra in High-Energy Physics (Invited Talk) -- A Note on Dynamic Gröbner Bases Computation -- Qualitative Analysis of the Reyman-Semenov-Tian-Shansky Integrable Case of the Generalized Kowalewski Top -- On Multiple Eigenvalues of a Matrix Dependent on a Parameter -- A Generalised Branch-and-Bound Approach and its Application in SAT Modulo Nonlinear Integer Arithmetic -- Computing Characteristic Polynomials of Matrices of Structured Polynomials -- Computing Sparse Representations of Systems of Rational Fractions -- On the General Analytical Solution of the Kinematic Cosserat Equations -- Using Sparse Interpolation in Hensel Lifting -- A Survey of Satisfiability Modulo Theory -- Quadric Arrangement in Classifying Rigid Motions of a 3D Digital Image -- A Lower Bound for Computing Lagrange's Real Root Bound -- Enhancing the Extended Hensel Construction by Using Gröbner Bases -- Symbolic-Numerical Optimization and Realization of the Method of Collocations and Least Residuals for Solving the Navier-Stokes Equations -- Pruning Algorithms for Pretropisms of Newton Polytopes -- Computational Aspects of a Bound of Lagrange.

| Sommario/riassunto | This book constitutes the proceedings of the 18th International Workshop on Computer Algebra in Scientific Computing, CASC 2016, held in Bucharest, Romania, in September 2016. The 32 papers presented in this volume were carefully reviewed and selected from 39 submissions. They deal with cutting-edge research in all major disciplines of Computer Algebra. |