

Table of Contents

Jets. A MAPLE-Package for Formal Differential Geometry	1
<i>Mohamed Barakat</i>	
Computing Stratifications of Quotients of Finite Groups and an Application to Shape Memory Alloys	13
<i>Thomas Bayer</i>	
A MuPAD Library for Differential Equations	25
<i>Jay Belanger, Marcus Hausdorf, Werner M. Seiler</i>	
Algebraic Identification Algorithm and Application to Dynamical Systems	43
<i>Farida Benmakrouha, Christiane Hespel, Gérard Jacob, Edouard Monnier</i>	
Cooperation Between a Dynamic Geometry Environment and a Computer Algebra System for Geometric Discovery	63
<i>Francisco Botana, José L. Valcarce</i>	
On the Stability of Steady Motions of a Solar-Sail Satellite	75
<i>Larissa Bourlakova</i>	
Application of Computer Algebra for Investigation of a Group Properties of the Navier-Stokes Equations for Compressible Viscous Heat-Conducting Gas	83
<i>Vasiliy V. Bublik</i>	
Mathematica and Nilpotent Lie Superalgebras.	91
<i>L.M. Camacho, J.R. Gómez, R.M. Navarro, I. Rodríguez</i>	
Neighborhoods of an Ordinary Linear Differential Equation	107
<i>Giuseppa Carrà Ferro, Valentina Marotta</i>	
Invariants of Finite Groups and Involutive Division	123
<i>C. F. Cid, W. Plesken</i>	
Symbolic Computation and Boundary Conditions for the Wave Equation. .	137
<i>A. S. Deakin, H. Rasmussen</i>	
Parametric Systems of Linear Congruences	149
<i>Andreas Dolzmann, Thomas Sturm</i>	
Bifurcation Analysis of Low Resonant Case of the Generalized Henon - Heiles System	167
<i>Victor F. Edneral</i>	

An Involutive Reduction Method to Find Invariant Solutions for Partial Differential Equations	177
<i>Joachim Engelmann, Gerd Baumann</i>	
Recurrence Functions and Numerical Characteristics of Graphs	187
<i>Gani E. Ergashev, Ulugbek H. Narzullaev</i>	
A New Combinatorial Algorithm for Large Markov Chains	195
<i>Anna Gambin, Piotr Pokarowski</i>	
GROOME – Tool Supported Graphical Object Oriented Modelling for Computer Algebra and Scientific Computing	213
<i>Victor G. Ganzha, Dmytro Chibisov, Evgenii V. Vorozhtsov</i>	
Construction of Janet Bases I.Monomial Bases	233
<i>Vladimir P.Gerdt, Yuri A. Blinkov, Denis A.Yanovich</i>	
Construction of Janet Bases II.Polynomial Bases	249
<i>Vladimir P.Gerdt, Yuri A. Blinkov, Denis A.Yanovich</i>	
Low-Dimensional Quasi-Filiform Lie Algebras with Great Length	265
<i>J. R. Gómez, A. Jiménez-Merchán, J. Reyes</i>	
Algebraic Methods for Sectioning Parametric Surfaces	283
<i>Jesus Espinola, Laureano Gonzalez-Vega, Ioana Necula</i>	
The Methods of Computer Algebra and the Arnold–Moser Theorem	297
<i>E.A. Grebenikov</i>	
Symbolic Algorithms of Algebraic Perturbation Theory: Hydrogen Atom in the Field of Distant Charge	309
<i>Alexander Gusev, Valentin Samoilov, Vitaly Rostovtsev, Sergue Vinitsky</i>	
Perturbation versus Differentiation Indices	323
<i>Marcus Hausdorf, Werner M. Seiler</i>	
Employment of the Gröbner Bases in Analysis of Systems Having Algebraic First Integrals	339
<i>Valentin Irtegov, Tatyana Titorenko</i>	
“Coalgebra” Structures on 1–Homological Models for Commutative Differential Graded Algebras	347
<i>M. J. Jiménez, P. Real</i>	
Conservative Finite Difference Schemes for Cosymmetric Systems	363
<i>Bülent Karasözen, Vyacheslav G. Tsybulin</i>	

A Mathematica Solver for Two-Point Singularly-Perturbed Boundary Value Problems	377
<i>Raya Khanin</i>	
A New Algorithm for Computing Cohomologies of Lie Superalgebras	391
<i>Vladimir V. Korniyak</i>	
Parallel Computing with Mathematica	399
<i>Roman Mäder</i>	
Solution of Systems of Linear Diophantine Equations	401
<i>Gennadi I. Malaschonok</i>	
SYMOPT: Symbolic Parametric Mathematical Programming	417
<i>Isolde Mazzucco</i>	
Representing Graph Properties by Polynomial Ideals	431
<i>Michal Mnuk</i>	
Parametric G^1 -Blending of Several Surfaces	445
<i>Sonia Pérez-Díaz, Rafael Sendra</i>	
A Method of Logic Deduction and Verification in KBS Using Positive Integers	461
<i>E. Roanes-Lozano, E. Roanes-Maciás, L.M. Laita</i>	
Progressive Long Waves on a Slope (A New Solution to the Euler Equation?)	477
<i>Alexander Shermenev</i>	
The Method of Newton Polyhedra for Investigating Singular Positions of Some Mechanisms	491
<i>Akhmadjon Soleev, Adizjon S. Barotov</i>	
Algebraic Predicates for Empirical Data	499
<i>Hans J. Stetter</i>	
Fractional Driftless Fokker–Planck Equation with Power Law Diffusion Coefficients	513
<i>Norbert Südländ, Gerd Baumann, Theo F. Nonnenmacher</i>	
Factorization of Overdetermined Systems of Linear Partial Differential Equations with Finite-Dimensional Solution Space	529
<i>Serguei P. Tsarev</i>	
Semilinear Motion Planning Among Moving Objects in REDLOG	541
<i>Volker Weispfenning</i>	
Author Index	555

Computer Algebra in Scientific Computing CASC 2001
Proceedings of the Fourth International Workshop on
Computer Algebra in Scientific Computing, Konstanz,
Sept. 22-26, 2001

Ganzha, V.G.; Mayr, E.W.; Vorozhtsov, E.V. (Eds.)

2001, XI, 555 p., Hardcover

ISBN: 978-3-540-42355-3