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Nota di contenuto	New Developments on Computer Algebra Packages (Andrés Iglesias, Tetsuo Ida) -- A General Computational Scheme for Testing Admissibility of Nilpotent Orbits of Real Lie Groups of Inner Type -- Efficient Implementation of Polynomial Arithmetic in a Multiple-Level Programming Environment -- Development of a Maple Macro Package Suitable for Drawing Fine -Pictures -- Matlab-Based Problem-Solving Environment for Geometric Processing of Surfaces -- A Mathematica Notebook for Computing the Homology of Iterated Products of Groups -- Interfacing Computer Algebra and Mathematical Visualization (Konrad Polthier) -- GCLC — A Tool for Constructive Euclidean Geometry and More Than That -- jReality, jtem, and Oorange — A Way to Do Math with Computers -- MuPAD's Graphics System -- Software

for Algebraic Geometry and Related Topics (Nobuki Takayama, Gert-Martin Greuel) -- An Efficient Implementation for Computing Gröbner Bases over Algebraic Number Fields -- Tree Checking for Sparse Complexes -- The SARAG Library: Some Algorithms in Real Algebraic Geometry -- Algebraic Computation of Some Intersection D-Modules -- Plural, a Non-commutative Extension of Singular: Past, Present and Future -- Number Theoretical Software (Ken Nakamura, Michael Pohst) -- Development of NZMATH -- KASH: Recent Developments -- Methods in Computational Number Theory (David Sevilla, Jaime Gutierrez) -- Making Change and Finding Repeating: Balancing a Knapsack -- Robust HGCD with No Backup Steps -- Free Software for Computer Algebra (Joris Van Der Hoeven) -- The Design of CoCoALib -- Software for Optimization and Geometric Computation (Komei Fukuda, Michael Joswig) -- Generation of Oriented Matroids Using Satisfiability Solvers -- Flexible Object Hierarchies in Polymake -- A Presentation of the Gfan Software -- Parallel Homotopy Algorithms to Solve Polynomial Systems -- DEpH LAUNAY -- iB4e: A Software Framework for Parametrizing Specialized LP Problems -- Primal-Dual Enumeration for Multiparametric Linear Programming -- A Parallel, Asynchronous Method for Derivative-Free Nonlinear Programs -- Convergent SDP-Relaxations for Polynomial Optimization with Sparsity -- Methods and Software for Computing Mathematical Functions (Amparo Gil, Javier Segura) -- Algorithm and Software for Integration over a Convex Polyhedron -- A Matlab Implementation of an Algorithm for Computing Integrals of Products of Bessel Functions -- Computation of the Real Zeros of the Kummer Function $M(a;c;x)$ -- Towards Reliable Software for the Evaluation of a Class of Special Functions -- Access to Mathematics on the Web (Paul Libbrecht) -- Multimedia Prototype of a Bilingual Model Within Technology Based Learning Environment: An Implementation of a Mathematics Learning Framework -- Methods to Access and Retrieve Mathematical Content in ActiveMath -- Logiweb – A System for Web Publication of Mathematics -- General Track -- Interfacing with the Numerical Homotopy Algorithms in PHCpack -- Computational Construction of a Maximum Equilateral Triangle Inscribed in an Origami -- A System for Interfacing MATLAB with External Software Geared Toward Automatic Differentiation -- KNOPPIX/Math: Portable and Distributable Collection of Mathematical Software and Free Documents -- Stability of Parametric Decomposition -- On the GAP Package sgpviz -- Making Research on Symmetric Functions with MuPAD-Combinat -- Calculating Cocyclic Hadamard Matrices in Mathematica: Exhaustive and Heuristic Searches -- An Interactive User Interface for Division Algorithms and the Buchberger Algorithm -- Experiment of Multithreading Symbolic and Algebraic Computations with OpenMP -- Links to Projects ICMS 2006 (Masayuki Noro, Nobuki Takayama) -- Links to Projects. Mathematical Software, icms2006—Developer's Meeting.

Sommario/riassunto

This volume contains the outstanding collection of invited papers and refereed papers selected for the Second International Congress on Mathematical Software, ICMS 2006, held in Castro Urdiales, Spain, September 1-3, 2006. We cordially invite you to visit the ICMS 2006 website <http://www.icms2006.unican.es> where you can find all relevant information about this interesting event. ICMS 2006 was the second edition of this congress, which follows up the successful ICMS 2002 held in Beijing, China. Since its inception, this congress has been a satellite event of the International Congress of Mathematicians - ICM, the world's largest conference on mathematics, celebrated every four years since the edition of 1900 in Paris, where David Hilbert presented his 23 famous problems. For the first time, this 2006 edition of ICM is

held in Spain (see: <http://www.icm2006.org> for details), and so is ICMS 2006. This congress was devoted to all aspects of mathematical software, whose appearance is — in our opinion — one of the most important events in mathematics. Mathematical software systems are used to construct examples, to prove theorems, and to find new mathematical phenomena. Conversely, mathematical research often motivates developments of new algorithms and new systems. Beyond mathematics, mathematical software systems are becoming indispensable tools in many branches of science and technology.
