1.	Record Nr.	UNISA996465941203316
	Titolo	Computer Algebra in Scientific Computing [[electronic resource]] : 12th International Workshop, CASC 2010, Tsakhadzor, Armenia, September 6-12, 2010, Proceedings / / edited by Vladimir P. Gerdt, Wolfram Koepf, Ernst W. Mayr, Evgenii V. Vorozhtsov
	Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2010
	ISBN	1-280-38841-2 9786613566331 3-642-15274-0
	Edizione	[1st ed. 2010.]
	Descrizione fisica	1 online resource (XIV, 304 p. 48 illus.)
	Collana	Theoretical Computer Science and General Issues, , 2512-2029 ; ; 6244
	Disciplina	518
	Soggetti	Computer science—Mathematics Computer programming Computer science Discrete mathematics Algorithms Computer graphics Symbolic and Algebraic Manipulation Programming Techniques Theory of Computation Discrete Mathematics in Computer Science Computer Graphics
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Bibliographic Level Mode of Issuance: Monograph
	Nota di bibliografia	Includes bibliographical references and index.
	Nota di contenuto	Construction of Irreducible Polynomials over Finite Fields -- Factorization of Polynomials and GCD Computations for Finding Universal Denominators -- A Role of Symbolic Computations in Beam Physics -- Thomas Decomposition of Algebraic and Differential Systems -- On Multivariate Homogeneous Polynomial Decomposition -- Computing Matrix Representations of Filiform Lie Algebras -- Type Specialization in Aldor -- An Algebraic Implicitization and

Specialization of Minimum KL-Divergence Models -- On Sufficient Conditions for Integrability of a Planar System of ODEs Near a Degenerate Stationary Point -- Symbolic-Numeric Algorithms for Computer Analysis of Spheroidal Quantum Dot Models -- On Reduction of Lagrange Systems -- Series Transformations to Improve and Extend Convergence -- Differential Resultant, Computer Algebra and Completely Integrable Dynamical Systems -- Generic, Type-Safe and Object Oriented Computer Algebra Software -- Implementing Data Parallel Rational Multiple-Residue Arithmetic in Eden -- Fast Generalized Bruhat Decomposition -- Computational Science in Armenia (Invited Talk) -- From Petri Nets to Polynomials: Modeling, Algorithms, and Complexity (Abstract) (Invited Talk) -- Supporting Global Numerical Optimization of Rational Functions by Generic Symbolic Convexity Tests -- Term Cancellations in Computing Floating-Point Gröbner Bases -- One Class of Third-Order Linear ODE's -- GPGCD, an Iterative Method for Calculating Approximate GCD, for Multiple Univariate Polynomials -- Derivation of Explicit Difference Schemes for Ordinary Differential Equations with the Aid of Lagrange–Burmann Expansions -- Parametric Qualitative Analysis of Ordinary Differential Equations: Computer Algebra Methods for Excluding Oscillations (Extended Abstract) (Invited Talk) -- An Analytical Model for the Probability Characteristics of a Crack Hitting an Encapsulated Self-healing Agent in Concrete -- Extending Clause Learning of SAT Solvers with Boolean Gröbner Bases.

| Sommario/riassunto | The CASC Workshops are traditionally held in turn in the Commonwealth of IndependentStates(CIS)andoutsideCIS (Germanyinparticular,but,attimes, also other countries with lively CA communities). The previous CASC Wo- shop was held in Japan, and the 12th workshop was held for the ?rst time in Armenia, which is one of the CIS republics. It should be noted that more than 35 institutes and scienti?c centers function within the National Academy of S- ences of Armenia (further details concerning the structure of the academy can be foundhttp://www. sci. am). These institutions are concerned, in particular, with problems in such branches of natural science as mathematics, informatics, physics, astronomy, biochemistry, etc. It follows from the talks presented at the previous CASC workshops that the methods and systems of computer algebra may be applied successfully in all the above-listed branches of natural sciences. Therefore, the organizers of the 12th CASC Workshop hope that the present workshop will help the Armenian scientists to become even more familiar with the capabilities of advanced computer algebra methods and systems and to get in touch with specialists in computer algebra from other countries. The 11 earlier CASC conferences, CASC 1998, CASC 1999, CASC 2000, CASC 2001, CASC 2002, CASC 2003, CASC 2004, CASC 2005, CASC 2006, CASC 2007, and CASC 2009 were held, respectively, in St. Petersburg (R- sia), Munich (Germany), Samarkand (Uzbekistan), Konstanz (Germany), Yalta (Ukraine), Passau (Germany), St. |