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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	CONTENTS; Preface; Hypergeometric Summation Revisited S. A. Abramov, M. Petkovsek; 1. Introduction; 2. Validity conditions of the discrete Newton-Leibniz formula; 2.1. A criterion; 2.2. Summation of proper hypergeometric sequences; 2.3. When the interval I contains no leading integer singularity of L; 3. The spaces $VI(L)$ and $WI(R(k), L)$ ; 3.1. The structure of $WI(R(k), L)$ ; 3.2. When a rational solution of Gosper's equation is not unique; 3.3. If Gosper's equation has a rational solution $R(k)$ then $WI(R, L) = 0$ ; References Five Applications of Wilf-Zeilberger Theory to Enumeration and Probability M. Apagodu, D. Zeilberger Explicit Formulas vs. Algorithms; The Holonomic Ansatz; Why this Paper?; The Maple packages AppsWZ and AppsWZmulti; Asymptotics; First Application: Rolling a Die; Second Application: How many ways to have r people chip in to pay a bill of n

cents; Third Application: Hidden Markov Models; Fourth Application: Lattice Paths Counting; References; Factoring Systems of Linear Functional Equations Using Eigenrings M. A. Barkatou; 1. Introduction and notations; 2. Preliminaries  
 3. Eigenrings and reduction of pseudo-linear equations Maximal Decomposition; 4. Spaces of homomorphisms and factorization; Appendix A.  $K[X, \sigma]$ -modules and matrix pseudo-linear equations; Appendix A.1. Pseudo-linear operators; Appendix A.2. Similarity, reducibility, decomposability and complete reducibility; Appendix A.3. The ring of endomorphisms of a pseudo-linear operator; References; Modular Computation for Matrices of Ore Polynomials H. Cheng, G. Labahn; 1. Introduction; 2. Preliminaries; 2.1. Notation; 2.2. Definitions; 2.3. The FFreduce Elimination Algorithm  
 3. Linear Algebra Formulation 4. Reduction to  $\mathbb{Z}_p[t][Z]$ ; 4.1. Lucky Homomorphisms; 4.2. Termination; 5. Reduction to  $\mathbb{Z}_p$ ; 5.1. Applying Evaluation Homomorphisms and Computation in  $\mathbb{Z}_p$ ; 5.2. Lucky Homomorphisms and Termination; 6. Complexity Analysis; 7. Implementation Considerations and Experimental Results; 8. Concluding Remarks; References; Beta-Expansions of Pisot and Salem Numbers K. G. Hare; 1. Introduction and History; 2. Univoque Pisot Numbers; 3. Algorithms and Implementation Issues; 4. Conclusions and Open Questions; References  
 Logarithmic Functional and the Weil Reciprocity Law A. Khovanskii 1. Introduction; 1.1. The Weil reciprocity law; 1.2. Topological explanation of the reciprocity law over the field  $\mathbb{C}$ ; 1.3. Multi-dimensional reciprocity laws; 1.4. The logarithmic functional; 1.5. Organization of material; 2. Formulation of the Weil reciprocity law; 3. LB-functional of the pair of complex valued functions of the segment on real variable; 4. LB-functional of the pair of complex valued functions and one-dimensional cycle on real manifold; 5. Topological proof of the Weil reciprocity law  
 6. Generalized LB-functional

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Sommario/riassunto

Written by world-renowned experts, the book is a collection of tutorial presentations and research papers catering to the latest advances in symbolic summation, factorization, symbolic-numeric linear algebra and linear functional equations. The papers were presented at a workshop celebrating the 60th birthday of Sergei Abramov (Russia), whose highly influential contributions to symbolic methods are adopted in many leading computer algebra systems.

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