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Nota di contenuto	Preface; CONTENTS; Multidegree for Bifiltered D-modules and Hypergeometric Systems R. Arcadias; Introduction; 1. Bifiltered free resolution of D-modules; 2. Multidegree for bifiltered D-modules; 3. Examples from the theory of hypergeometric systems; 3.1. V -filtration along the origin; 3.2. V -filtration along coordinate hyperplanes; 3.3. Dependency of the multidegree on the parameters; 3.4. Positivity; 4. Proof of Theorem 2.1; Acknowledgements; References; Desingularization Algorithms: A Comparison from the Practical Point of View R. Blanco and A. Fruhbis-Kruger; 1. Introduction 2. Algorithms re.ning Hironaka's approach in the general case3. Combinatorial algorithms for the binomial case; 4. Algorithmic resolution in low dimensions; 4.1. Resolution of surfaces by Jung's approach; 4.2. Beyond the geometric case: Lipman's construction for two dimensional schemes; 5. Comparisons and timings; Acknowledgments; References; Computing Localizations Iteratively F. J. Castro-Jimenez and A. Leykin; Introduction; 1. Preliminaries; 1.1. Weyl algebra; 1.2. Grobner bases; 1.3. Holonomic D-modules; 2. Iterative

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 6. Computational Results; 7. Conclusions and Open Problems; Appendix A. Supporting Hyperplanes; References; First Steps toward the Geometry of Cophylogeny P. Huggins, M. Owen and R. Yoshida; 1. Introduction; 2. Spaces of cophylogenetic trees; 3. Cophylogenetic reconstruction; 3.1. Retraction onto spaces of cophylogenetic trees; 3.2. Balanced minimum coevolution; 4. Cophylogenetic invariants; 5. Open problems; 6. Proof of Theorem 2.2; Acknowledgements; References
 Cones of Elementary Imsets and Supermodular Functions: A Review and Some New Results T. Kashimura, T. Sei, A. Takemura and K. Tanaka

Sommario/riassunto

This volume consists of research papers and expository survey articles presented by the invited speakers of the conference on "Harmony of Grobner Bases and the Modern Industrial Society". Topics include computational commutative algebra, algebraic statistics, algorithms of D-modules and combinatorics. This volume also provides current trends on Grobner bases and will stimulate further development of many research areas surrounding Grobner bases.
