Preface  p. vii
Programme Committee  p. viii
Tutorials
Introduction to Grobner Bases  p. 3
Grobner Bases, Symbolic Summation and Symbolic Integration  p. 32
Grobner Bases and Invariant Theory  p. 61
A Tutorial on Generic Initial Ideals  p. 90
Grobner Bases and Algebraic Geometry  p. 109
Grobner Bases and Integer Programming  p. 144
Grobner Bases and Numerical Analysis  p. 159
Grobner Bases and Statistics  p. 179
Grobner Bases and Coding Theory  p. 205
Janet Bases for Symmetry Groups  p. 221
Grobner Bases in Partial Differential Equations  p. 235
Grobner Bases and Hypergeometric Functions  p. 246
Introduction to Noncommutative Grobner Bases Theory  p. 259
Grobner Bases Applied to Geometric Theorem Proving and Discovering  p. 281
Research Papers
The Fractal Walk  p. 305
Grobner Bases Property on Elimination Ideal in the Noncommutative Case  p. 323
The CoCoA 3 Framework for a Family of Buchberger-like Algorithms  p. 338
Newton Identities in the Multivariate Case: Pham Systems  p. 351
Grobner Bases in Rings of Differential Operators  p. 367
Canonical Curves and the Petri Scheme  p. 381
The Buchberger Algorithm as a Tool for Ideal Theory of Polynomial Rings in Constructive Mathematics  p. 393
Grobner Bases in Non-Commutative Reduction Rings  p. 408
Effective Algorithms for Intrinsically Computing SAGBI-Grobner Bases in a Polynomial Ring over a Field  p. 421
De Nugis Groebnerialium 1: Eagon, Northcott, Grobner  p. 434
An Application of Grobner Bases to the Decomposition of Rational Mappings  p. 448
On some Basic Applications of Grobner Bases in Noncommutative Polynomial Rings  p. 463
Full Factorial Designs and Distracted Fractions  p. 473
Polynomial Interpolation of Minimal Degree and Grobner Bases  p. 483
Inversion of Birational Maps with Grobner Bases  p. 495
Reverse Lexicographic Initial Ideals of Generic Ideals are Finitely Generated  p. 504
Parallel Computation and Grobner Bases: An Application for Converting Bases with the Grobner Walk  p. 519
Appendix
Index of Tutorials  p. 546
Table of Contents provided by Blackwell's Book Services and R.R. Bowker. Used with permission.