Difference Algebra

DOWNLOAD HERE

Preface. - 1. Preliminaries. 1.1 Basic terminology and background material. 1.2 Elements of the theory of commutative rings. 1.3 Graded and filtered rings and modules. 1.4 Numerical polynomials. 1.5 Dimension polynomials of sets of m-tuples. 1.6 Basic facts of the field theory. 1.7 Derivations and modules of differentials. 1.8 Grbner Bases. - 2. Basic concepts of difference algebra. 2.1 Difference and inversive difference rings. 2.2 Rings of difference and inversive difference polynomials. 2.3 Difference ideals. 2.4 Autoreduced sets of difference and inversive difference polynomails. Characteristic sets. 2.5 Ritt difference rings. 2.6 Varieties of difference polynomials. - 3. Difference modules. 3.1 Rings of difference operators. Difference modules. 3.2 Dimension polynomials of difference modules. 3.3 Grbner Bases with respects to several orderings and multivariable dimension polynomials of difference modules. 3.4 Inversive difference modules. 3.5 s -Dimension polynomials and their invariants. 3.6 Dimension of general difference modules. - 4. Difference field extensions. 4.1 Transformal dependence. Difference transcendental bases and difference transcendental degree. 4.2 Dimension polynomials of difference and inversive difference field extensions. 4.3 Limit degree. 4.4 The fundamental theorem on finitely generated difference field extensions. 4.5 Some results on ordinary difference field extensions. 4.6 Difference algebras. - 5. Compatibility, Replicability, and Monadicity. Difference specializations. 5.1 Compatible and incompatible difference field extensions. 5.2 Difference kernels over ordinary difference fields. 5.3 Difference specializations. 5.4 Babbitt's decomposition. Criterion of compatibility. 5.5 Replicability. 5.6 Monadicity. - 6. Difference kernels over partial difference fields. Difference valuation rings. 6.1 Difference kernels over partial difference fields and their prolongations. 6.2 Realizations of difference kernels over partial difference fields. 6.3 Difference valuation rings and extensions of difference specializations. - 7. Systems of algebraic difference equations. 7.1 Solutions of ordinary difference polynomials. 7.2 Existence theorem for ordinary algebraic difference equations. 7.3 Existence of solutions of difference polynomials in the case of two translations. 7.4 Singular and Multiple Realizations. 7.5 Review of further results on varieties of ordinary difference polynomials. 7.6 Ritt's number. Greenspan's and Jacobi's Bounds. 7.7 Dimension polynomials and the strength of a system of algebraic difference equations. - 8. Elements of

the difference galois theory. 8.1 Galois correspondence for difference field extensions. 8.2 Picard-Vessiot theory of linear homogeneous difference equations. 8.3 Picard-Vessiot rings and galois theory of difference equations.- Bibliography. - Index. EAN/ISBN : 9781402069475 Publisher(s): Springer Netherlands Format: ePub/PDF Author(s): Levin, Alexander

DOWNLOAD HERE

Similar manuals:

Difference Algebra