1. Record Nr. UNISA996213651403316

Autore	Robertz Daniel
Titolo	Formal Algorithmic Elimination for PDEs [[electronic resource] /] / by Daniel Robertz
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2014
ISBN	3-319-11445-X
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (VIII, 283 p. 6 illus., 3 illus. in color.)
Collana	Lecture Notes in Mathematics, , 0075-8434 ; ; 2121
Disciplina	512.94
Soggetti	Algebra Field theory (Physics) Commutative algebra Commutative rings Associative rings Rings (Algebra) Partial differential equations Field Theory and Polynomials Commutative Rings and Algebras Associative Rings and Algebras Partial Differential Equations
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes Index.
Nota di contenuto	Introduction -- Formal Methods for PDE Systems -- Differential Elimination for Analytic Functions -- Basic Principles and Supplementary Material -- References -- List of Algorithms -- List of Examples -- Index of Notation -- Index.
Sommario/riassunto	Investigating the correspondence between systems of partial differential equations and their analytic solutions using a formal approach, this monograph presents algorithms to determine the set of analytic solutions of such a system and conversely to find differential equations whose set of solutions coincides with a given parametrized set of analytic functions. After giving a detailed introduction to Janet bases and Thomas decomposition, the problem of finding an implicit

	description of certain sets of analytic functions in terms of differential equations is addressed. Effective methods of varying generality are developed to solve the differential elimination problems that arise in this context. In particular, it is demonstrated how the symbolic solution of partial differential equations profits from the study of the implicitization problem. For instance, certain families of exact solutions of the Navier-Stokes equations can be computed.

2. Record Nr. UNISA996465957003316

Titolo	Algebraic Foundations in Computer Science [[electronic resource]] : Essays Dedicated to Symeon Bozapalidis on the Occasion of His Retirement / / edited by Werner Kuich, George Rahonis
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2011
ISBN	3-642-24897-7
Edizione	[1st ed. 2011.]
Descrizione fisica	1 online resource (X, 363 p.)
Collana	Theoretical Computer Science and General Issues, , 2512-2029 ; ; 7020
Disciplina	004.01512
Soggetti	Computer science Machine theory Artificial intelligence Compilers (Computer programs) Computer science—Mathematics Software engineering Computer Science Logic and Foundations of Programming Formal Languages and Automata Theory Artificial Intelligence Compilers and Interpreters Symbolic and Algebraic Manipulation Software Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographic references and author index.

Nota di contenuto

Selected Decision Problems for Square-Refinement Collage Grammars -- Weighted Tree Automata over Valuation Monoids and Their Characterization by Weighted Logics -- Partial Conway and Iteration Semiring-Semimodule Pairs -- Kleene Theorem in Partial Conway Theories with Applications -- Rational Transformations and a Kleene Theorem for Power Series over Rational Monoids -- Equational Weighted Tree Transformations with Discounting -- Quantum Automata Theory – A Review -- Graph Automata: The Algebraic Properties of Abelian Relational Graphoids -- A Survey on Picture-Walking Automata -- Identity Problems, Solvability of Equations and Unification in Varieties of Semigroups Related to Varieties of Groups -- Algebraic Systems and Pushdown Automata -- Where Automatic Structures Benefit from Weighted Automata -- Survey: Weighted Extended Top-Down Tree Transducers Part III — Composition -- Valuations of Weighted Automata: Doing It in a Rational Way -- Selected Combinatorial Properties of Random Intersection Graphs. Weighted Tree Automata over Valuation Monoids and Their Characterization by Weighted Logics -- Partial Conway and Iteration Semiring-Semimodule Pairs -- Kleene Theorem in Partial Conway Theories with Applications -- Rational Transformations and a Kleene Theorem for Power Series over Rational Monoids -- Equational Weighted Tree Transformations with Discounting -- Quantum Automata Theory – A Review -- Graph Automata: The Algebraic Properties of Abelian Relational Graphoids -- A Survey on Picture-Walking Automata -- Identity Problems, Solvability of Equations and Unification in Varieties of Semigroups Related to Varieties of Groups -- Algebraic Systems and Pushdown Automata -- Where Automatic Structures Benefit from Weighted Automata -- Survey: Weighted Extended Top-Down Tree Transducers Part III — Composition -- Valuations of Weighted Automata: Doing It in a Rational Way -- Selected Combinatorial Properties of Random Intersection Graphs.

Sommario/riassunto

This Festschrift volume is published in honor of Symeon Bozapalidis on the occasion of his retirement after more than 35 years of teaching. The topics covered are: weighted automata over words and trees, tree transducers, quantum automata, graphs, pictures and varieties of semigroups. Since 1982 -- at the Aristotle University of Thessaloniki -- Symeon's main interests have been closely connected with the algebraic foundations in computer science. In particular, he contributed to the development of the theory of tree languages and series, the axiomatization of graphs, picture theory, and fuzzy languages. The volume, which focuses on the research interests of Symeon, contains 15 thoroughly refereed invited papers, written by his colleagues, friends, and students. Most of the papers were presented at the Workshop on Algebraic Foundations in Computer Science, held in Thessaloniki, Greece, during November 7--8, 2011.