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Titolo	Substitutions in Dynamics, Arithmetics and Combinatorics [[electronic resource] /] / by N. Pytheas Fogg ; edited by Valerie Berthé, Sebastien Ferenczi, Christian Mauduit, Anne Siegel
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Descrizione fisica	1 online resource (XX, 404 p.)
Collana	Lecture Notes in Mathematics, , 0075-8434 ; ; 1794
Disciplina	510 s 511.3
Soggetti	Number theory Functions of real variables Dynamics Ergodic theory Sequences (Mathematics) Computers Mathematical logic Number Theory Real Functions Dynamical Systems and Ergodic Theory Sequences, Series, Summability Computation by Abstract Devices Mathematical Logic and Formal Languages
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Basic notions on substitutions -- Basic notions on substitutions -- Arithmetics and combinatorics of substitutions -- Substitutions, arithmetic and finite automata: an introduction -- Automatic sequences and transcendence -- Substitutions and partitions of the set of positive integers -- Dynamics of substitutions -- Substitutions and symbolic dynamical systems -- Sturmian Sequences -- Spectral theory and geometric representation of substitutions -- Diophantine

approximations, substitutions, and fractals -- Extensions to free groups and interval transformations -- Infinite words generated by invertible substitutions -- Polynomial dynamical systems associated with substitutions -- Piecewise linear transformations of the unit interval and Cantor sets -- Some open problems -- A. Undecomposable matrices in dimension 3 (by J. Rivat).

Sommario/riassunto

A certain category of infinite strings of letters on a finite alphabet is presented here, chosen among the 'simplest' possible one may build, both because they are very deterministic and because they are built by simple rules (a letter is replaced by a word, a sequence is produced by iteration). These substitutive sequences have a surprisingly rich structure. The authors describe the concepts of quantity of natural interactions, with combinatorics on words, ergodic theory, linear algebra, spectral theory, geometry of tilings, theoretical computer science, diophantine approximation, transcendence, graph theory. This volume fulfils the need for a reference on the basic definitions and theorems, as well as for a state-of-the-art survey of the more difficult and unsolved problems.
