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Titolo	Molecular Computing : Towards a Novel Computing Architecture for Complex Problem Solving // by Weng-Long Chang, Athanasios V. Vasilakos
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ISBN	3-319-05122-9
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (279 p.)
Collana	Studies in Big Data, , 2197-6503 ; ; 4
Disciplina	511.3
Soggetti	Computational intelligence Artificial intelligence Computational Intelligence Artificial Intelligence
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Introduction to Digital Computers and Bio-molecular Computing -- Introduction for Bio-molecular Operations on Bio-molecular Computer -- Introduction for Number Representation on Bio-molecular Computer -- Introduction to Arithmetic Operations on Bits on Bio-molecular Computer -- Introduction to Logic Operations on Bits on Bio-molecular Computer -- Introduction to Comparators and Shifters and Increase and Decrease and Two Specific Operations on Bits on Bio-molecular Computer.
Sommario/riassunto	This textbook introduces a concise approach to the design of molecular algorithms for students or researchers who are interested in dealing with complex problems. Through numerous examples and exercises, you will understand the main difference of molecular circuits and traditional digital circuits to manipulate the same problem and you will also learn how to design a molecular algorithm of solving any a problem from start to finish. The book starts with an introduction to computational aspects of digital computers and molecular computing, data representation of molecular computing, molecular operations of molecular computing and number representation of molecular

computing, and provides many molecular algorithm to construct the parity generator and the parity checker of error-detection codes on digital communication, to encode integers of different formats, single precision and double precision of floating-point numbers, to implement addition and subtraction of unsigned integers, to construct logic operations including NOT, OR, AND, NOR, NAND, Exclusive-OR (XOR) and Exclusive-NOR (XNOR), to implement comparators, shifters, increase, decrease, and to complete two specific operations that are to find the maximum number of “1” and to find the minimum number of “1”. The book is also a useful reference source to people new for the field of molecular computing.
