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Titolo	DNA Beyond Genes : From Data Storage and Computing to Nanobots, Nanomedicine, and Nanoelectronics / / by Vadim V. Demidov
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Descrizione fisica	1 online resource (XX, 107 p. 66 illus., 63 illus. in color.)
Disciplina	572.86
Soggetti	Biomedical engineering Nanotechnology Biotechnology Genetics Genetic engineering Biomedical Engineering/Biotechnology Nanotechnology and Microengineering Microengineering Genetics and Genomics Genetic Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
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Nota di contenuto	Introduction: DNA basics (a primer on DNA) -- Hiding and storing messages and data in DNA -- DNA as a nanoscale building material -- DNA machines and nanobots -- DNA-based nanoelectronics -- Concluding remarks.
Sommario/riassunto	This is the first book portraying to a wide readership many fields of DNA in the world of materials altogether in a single volume. The book provides underlying concepts and state-of-art developments in the emerging fields of DNA electronics, structural DNA nanotechnology, DNA computing and DNA data storage, DNA machines and nanorobots. Future possibilities of innovative DNA-based technologies, such as DNA cryptography, DNA identity tags, DNA nanostructures in biosensing and nanomedicine, as well as DNA-based nanoelectronics are all covered,

too. This book is valuable for university students studying engineering and technology; biotech, nanotech, and medical device R&D managers, practitioners and investors; and IP analysts who would like to extend their background in advanced DNA technologies. It is nicely illustrated, which makes it very readable, and it conveys science and principles in a lively language to appeal to a broad audience, from professionals and academics to students and lay readers. Advance Praise for DNA Beyond Genes: "Most students of DNA, and lay readers as well, are interested in the absolutely essential role it plays in biology. However, the properties which make DNA the carrier of genetic information also make it an extraordinary material that can be used as the backbone for a wide variety of nanoengineering applications – these range from information storage and computation to molecular machines and devices to artfully designed logos and symbols. The perfect self-recognition of DNA sequences makes it an ideal building block to synthesize more and more elaborate constructions and imaginative scientists have probably only just scratched the surface of what can eventually be created. Here for the first time in this wonderful book Vadim Demidov explores the full range of the non-biological applications of DNA." Charles R. Cantor Professor Emeritus of Biomedical Engineering, Boston University Member of the USA National Academy of Sciences.
