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Nota di contenuto	New Experimental Tools -- A Lab-on-a-Chip Module for Bead Separation in DNA-Based Concept Learning -- Parallel Translation of DNA Clusters by VCSEL Array Trapping and Temperature Control with Laser Illumination -- Chemical Switching and Molecular Logic in Fluorescent-Labeled M-DNA -- RCA-Based Detection Methods for Resolution Refutation -- Theory -- Word Design for Molecular Computing: A Survey -- Time-Varying Distributed H Systems with Parallel Computations: The Problem Is Solved -- Deadlock Decidability

in Partial Parallel P Systems -- Computer Simulation and Sequence Design -- Languages of DNA Based Code Words -- Secondary Structure Design of Multi-state DNA Machines Based on Sequential Structure Transitions -- Analyzing Secondary Structure Transition Paths of DNA/RNA Molecules -- Self-Assembly and Autonomous Molecular Computation -- Self-Assembled Circuit Patterns -- One Dimensional Boundaries for DNA Tile Self-Assembly -- Proofreading Tile Sets: Error Correction for Algorithmic Self-Assembly -- Experimental Solutions -- A DNA-Based Memory with In Vitro Learning and Associative Recall -- Efficiency and Reliability of Semantic Retrieval in DNA-Based Memories -- Nearest-Neighbor Thermodynamics of DNA Sequences with Single Bulge Loop -- New Computing Models -- Mathematical Considerations in the Design of Microreactor-Based DNA Computers -- Towards a Re-programmable DNA Computer -- In Vitro Translation-Based Computations -- Autonomous Biomolecular Computer Modeled after Retroviral Replication -- Biomolecular Computing by Encoding of Regulated Phosphorylation-Dephosphorylation and Logic of Kinase-Phosphatase in Cells -- Conformational Addressing Using the Hairpin Structure of Single-Strand DNA.

Sommario/riassunto

Biomolecular computing is an interdisciplinary ?eld that draws together mol- ular biology, DNA nanotechnology, chemistry, physics, computer science and mathematics. Theannualinternationalmeeting onDNA-based computationhas been an exciting forum where scientists of di? erent backgrounds who share a common interest in biomolecular computing can meet and discuss their latest results. The central goal of this conference is to bring together experimentalists and theoreticians whose insights can calibrate each others' approaches. The 9th Annual International Meeting on DNA Based Computers was held during June 1–4, 2003 in the University of Wisconsin, Madison, USA. The meeting had 106 registered participants from 12 countries around the world. On the ?rst day of the meeting, we had three tutorials: the ?rst was on self-assembly of DNA nano structures which focused on the basic techniques of using designed DNA nano molecules to be self-assembled onto larger structures for computational purposes. This tutorial was given by Hao Yan of Duke U- versity. The second tutorial was given by Chengde Mao of Purdue University in which Dr. Mao presented basic DNA biochemistry that was designed for non experimentalists. The third tutorial was given by Max Garzon of the Univ- sity of Memphis. Dr. Garzon gave a lecture on computational complexity which was tailored for non-computer scientists. The next three days were for invited plenary lectures, and regular oral and poster presentations. Invited plenary l-tureswe regivenbyHelenBermanofRutgersUniversity(USA),GiancarloMauri of the University of Milan (Italy), Guenter von Kiedrowski of Ruhr University (Germany), and Sorin Istrail of Celera/Applied Biosystems. Theorganizerssoughtto attractthemostsigni?cantrecentresearchwith the highestimpactonthedevelopmentofthediscipline.