

Table of Contents

Experimental Validation of Signal Dependent Operation in Whiplash PCR	1
<i>Ken Komiyu, Masayuki Yamamura, and John A. Rose</i>	
Towards DNA Comparator: The Machine That Compares DNA Concentrations	11
<i>Fumiaki Tanaka, Takashi Tsuda, and Masami Hagiya</i>	
Construction of Photon-Fueled DNA Nanomachines by Tethering Azobenzenes as Engines	21
<i>Xingguo Liang, Hidenori Nishioka, Nobutaka Takenaka, and Hiroyuki Asanuma</i>	
Operon Structure Optimization by Random Self-assembly	33
<i>Yusuke Nakagawa, Katsuyuki Yugi, Kenji Tsuge, Mitsuhiro Itaya, Hiroshi Yanagawa, and Yasubumi Sakakibara</i>	
Isothermal Reactivating Whiplash PCR for Locally Programmable Molecular Computation	41
<i>John H. Reif and Urmi Majumder</i>	
DNA as a Universal Substrate for Chemical Kinetics (Extended Abstract)	57
<i>David Soloveichik, Georg Seelig, and Erik Winfree</i>	
A Simple DNA Gate Motif for Synthesizing Large-Scale Circuits (Extended Abstract)	70
<i>Lulu Qian and Erik Winfree</i>	
Tiamat: A Three-Dimensional Editing Tool for Complex DNA Structures	90
<i>Sean Williams, Kyle Lund, Chenxiang Lin, Peter Wonka, Stuart Lindsay, and Hao Yan</i>	
Connecting the Dots: Molecular Machinery for Distributed Robotics	102
<i>Yuriy Brun and Dustin Reishus</i>	
Polyomino-Safe DNA Self-assembly via Block Replacement	112
<i>Chris Luhrs</i>	
Robust Self-assembly of Graphs	127
<i>Stanislav Angelov, Sanjeev Khanna, and Mirkó Visontai</i>	
Time Optimal Self-assembly for 2D and 3D Shapes: The Case of Squares and Cubes	144
<i>Florent Becker, Éric Rémila, and Nicolas Schabanel</i>	

Self-assembly of Discrete Self-similar Fractals (Extended Abstract)	156
<i>Matthew J. Patitz and Scott M. Summers</i>	
Speeding Up Local-Search Type Algorithms for Designing DNA Sequences under Thermodynamical Constraints	168
<i>Suguru Kawashimo, Yen Kaow Ng, Hirotaka Ono, Kunihiko Sadakane, and Masafumi Yamashita</i>	
Sequentiality Induced by Spike Number in SNP Systems	179
<i>Oscar H. Ibarra, Andrei Păun, and Alfonso Rodríguez-Patón</i>	
Author Index	191