

Contents

1 Tight-Binding Modeling of Charge Migration in DNA Devices	
<i>G. Cuniberti, E. Maciá, A. Rodríguez, R.A. Römer</i>	1
2 Mechanism and Absolute Rates of Charge Transfer Through DNA	
<i>Ferdinand C. Grozema, Laurens D.A. Siebbeles</i>	21
3 Variable-Range Charge Hopping in DNA	
<i>Yuri A. Berlin, Mark A. Ratner</i>	45
4 Atomistic Models of DNA Charge Transfer	
<i>Thorsten Koslowski, Tobias Cramer</i>	63
5 Physics Aspects of Charge Migration Through DNA	
<i>Vadim Apalkov, Xue-Feng Wang, Tapash Chakraborty</i>	77
6 Vibronic Mechanisms for Charge Transport and Migration Through DNA and Single Molecules	
<i>Yoshihiro Asai, Tomomi Shimazaki</i>	121
7 The Role of Charge and Spin Migration in DNA Radiation Damage	
<i>David Becker, Amitava Adhikary, Michael D. Sevilla</i>	139
8 DNA-Based Thermoelectric Nanodevices: A Theoretical Perspective	
<i>Enrique Maciá</i>	177
9 Transverse Electronic Signature of DNA for Electronic Sequencing	
<i>Mingsheng Xu, Robert G. Endres, Yasuhiko Arakawa</i>	205
10 DNA Photonics – Probing Light-Induced Dynamics in DNA on the Femtosecond Timescale	
<i>Qiang Wang, Torsten Fiebig</i>	221

11 Vibrons in DNA: Their Influence on Transport

*Benjamin B. Schmidt, Evgeni B. Starikov, Matthias H. Hettler,
Wolfgang Wenzel* 249

**12 DNA-Based Assembly of Metal Nanoparticles:
Structure and Functionality**

Monika Fischler, Ulrich Simon 263

Index 283