

Contents

Part I Methods

1	Introduction: Nucleic Acids Structure, Function, and Why Studying Them In Vacuo	3
	Valérie Gabelica	
2	Transferring Nucleic Acids to the Gas Phase	21
	Gilles Grégoire	
3	Structure of Nucleic Acids in the Gas Phase	55
	Annalisa Arcella, Guillem Portella, and Modesto Orozco	
4	Interactions Between Nucleic Acid Ions and Electrons and Photons	77
	Steen Brøndsted Nielsen	
5	Gas-Phase Spectroscopy of Nucleic Acids	103
	Valérie Gabelica and Frédéric Rosu	
6	Fragmentation Reactions of Nucleic Acid Ions in the Gas Phase	131
	Yang Gao and Scott A. McLuckey	

Part II Applications

7	Characterization of Ribonucleic Acids and Their Modifications by Fourier Transform Ion Cyclotron Resonance Mass Spectrometry	185
	Kathrin Breuker	
8	Quantification of DNA Damage Using Mass Spectrometry Techniques	203
	Thierry Douki and Jean-Luc Ravanat	

9	Ligand Binding to Nucleic Acids	225
	Jennifer S. Brodbelt and Zhe Xu	
10	MS-Based Approaches for Nucleic Acid Structural	
	Determination	253
	Daniele Fabris	
	Index	283