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Sommario/riassunto

This volume focuses on recent advancements in our current understanding of nucleic acid photochemistry and its relationship to biologically relevant phenomena. Understanding the photophysical properties of nucleic acids is an area of longstanding and active research. Over the years, the field has greatly benefitted from steady advances in spectroscopic techniques and computational methods to study molecular excited states, which have facilitated detailed studies of the behavior of nucleic acids and their components after they absorb light. Experiments performed on ultrafast time scales (femtoseconds - picoseconds) have permitted the accurate determination of excited state lifetimes, while computational studies have provided detailed microscopic information about the mechanisms involved. As our understanding of the fundamental photophysics of nucleic acids has advanced, current studies now focus on systems of higher complexity, and introduce novel optical techniques to investigate the interactions between nucleic acids and proteins. Spectroscopic studies of nucleic acids, particularly nucleic acid constructs labeled with optical probes, can yield richly detailed information important to molecular biology, biochemistry and biophysics. This book is a must-read for anyone interested in the photophysical properties of nucleic acids and their role in biologically relevant phenomena.