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Sommario/riassunto	This book presents the first comprehensive textbook on polymer gels worldwide, offering an in-depth understanding of these materials from both physico-chemical and biological perspectives. It begins with an overview of polymer gels, elucidating their significance in daily life and emphasizing their importance as a fundamental state of matter. This is followed by a discussion of the history, definition, and classification of polymer gels. This book explores a wide array of topics, from the basic properties of gels to their biomimetic functions, including aspects such

as network formation, swelling, and their role in living organisms. Readers can swiftly comprehend the nature and significance of gels in daily life. Moreover, they will gain specialized knowledge about the kinetics and statistics of gel synthesis, methodology of investigation of structure, thermodynamics of swelling equilibrium, and distinctive mechanical behaviors (viscoelastic properties) of gels. This book also highlights the importance of gels within living organisms and examines future trends in gel science within biomedical fields. It is recommended for graduate and undergraduate students, emerging scientists, and industrial engineers. Specialists in chemistry, physics, and biology are encouraged to engage with this work to expand and enhance their scientific understanding.