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Sommario/riassunto	"The Chemical Evolution of Phosphorus: An Interdisciplinary Approach to Astrobiology is an exploration of "the phosphorus enigma." The volume attempts to answer the questions How did phosphorus atoms, which are produced inside the inner cores of a handful of huge stars, become concentrated in relatively high proportions in the organisms composing Earth's biosphere? And how did these phosphate derivatives manage to be included in such a great variety of organic molecules playing essential biochemical roles in all known life forms? Due to the interdisciplinary nature of the topic, the volume is arranged in three main sections. The first section introduces the fundamental concepts and notions of physics, chemistry, and biology necessary for the proper understanding of the topics discussed within an astronomical framework. It covers the basic features of astrophysics, cosmochemistry, and astrobiology disciplines and provides a brief

summary of the main physical and chemical properties of phosphorus compounds of interest. The second section focuses on the role of phosphorus and its compounds within the context of chemical evolution in galaxies. Following an interdisciplinary approach, the author discusses the position of P among the main biogenic elements by considering its relevance in most essential biochemical functions as well as its peculiar chemistry under different physicochemical conditions. The phosphorus distribution in different cosmic sites, such as terrestrial planets, interplanetary dust particles, cometary dust, planetary atmospheres, and the interstellar medium (ISM) is reviewed, showing that this element is both scarce and ubiquitous in the universe. Also addressed are some possible routes allowing for the incorporation of phosphorus compounds of prebiotic interest during the earlier stages of solar system formation. The third section features an overall perspective on the role of phosphorus and its compounds in current areas of research of solid state physics, materials engineering, nanotechnology or medicine, as well as some perspectives for future work in order to properly solve the enigma of phosphorus in chemical evolution. The book can be used as reader-friendly resource for undergraduate, graduate, or postgraduate students, senior scientists, and researchers coming from diverse related fields of physics, chemistry, and materials science, as well as senior scientists interested in primary sources of the main biogenic elements."--