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Nota di contenuto	Chapter 1. Historical survey of chronobiology with reference to studies in insects -- Part I. Circadian rhythms -- Chapter 2. General features of circadian rhythms -- Chapter 3. Photic entrainment of circadian rhythms -- Chapter 4. Molecular mechanism of the circadian clock -- Chapter 5. Neural mechanism of the circadian clock -- Chapter 6. Peripheral circadian clock -- Chapter 7. Circa-bidian rhythm -- Chapter 8. Circadian rhythms in social insects -- Chapter 9. Environmental adaptation and evolution of circadian rhythms -- Part II. Other types of insect rhythms and photoperiodism -- Chapter 10. Lunar and tidal rhythms -- Chapter 11. Circannual rhythms -- Chapter 12. General features of photoperiodism -- Chapter 13. Molecular mechanism of photoperiodism -- Chapter 14. Neural mechanism of photoperiodism -- Chapter 15. Seasonal timer in aphids -- Chapter 16. Time-compensated celestial navigation.
Sommario/riassunto	This book reviews the physiological mechanisms of diverse insect clocks, including circadian clock, lunar clock, tidal clock, photoperiodism, circannual rhythms and others. It explains the commonality and diversity of insect clocks, focusing on the recent

advances in their molecular and neural mechanisms. In the history of chronobiology, insects provided important examples of diverse clocks. The first report of animal photoperiodism was in an aphid, and the time-compensated celestial navigation was first shown in the honeybee. The circadian clock was first localized in the brain of a cockroach. These diverse insect clocks also have some common features which deserve to be reviewed in a single book. The central molecular mechanism of the circadian clock, i.e., the negative feedback loop of clock genes, was proposed in Drosophila melanogaster in the 1990s and later became the subject of the Nobel Prize in Physiology or Medicine in 2017. Thereafter, researches on the molecular and neural mechanisms in diverse insect clocks other than the Drosophila circadian clock also advanced appreciably. Various new methods including RNAi, NGS, and genome editing with CRISPR-Cas9 have become applicable in these researches. This book comprehensively reviews the physiological mechanisms in diverse insect clocks in the last two decades, which have received less attention than the Drosophila circadian clock. The book is intended for researchers, graduate students, and highly motivated undergraduate students in biological sciences, especially in entomology and chronobiology. .