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Sommario/riassunto	As the main trend and key enabling technology for next-generation wireless networks (i.e., 6G), integrated sensing and communication (ISAC) can effectively improve spectrum efficiency, hardware efficiency,

and information processing efficiency. However, it faces several deficiencies, including limited coverage due to high-frequency signals and limited communication-sensing performance due to uncontrollable wireless environments. Reconfigurable intelligent surface (RIS) provides novel dimensions to address these deficiencies by intelligently manipulating the wireless propagation environment in an energy- and hardware-efficient manner. RIS-enabled ISAC is expected to comprehensively promote the multi-dimensional performance of 6G, such as communication capacity, sensing accuracy, and coverage. Nevertheless, to fully realize its potential, one needs to figure out the impacts of RIS on joint communication and sensing performance and tackle new technical challenges in beamforming design and signal processing. The goal of this book, therefore, is to deliver a thorough understanding of RIS-enabled ISAC from three perspectives: performance analysis, beamforming design, and signal processing. Specifically, the authors provide a brief introduction to RIS-enabled ISAC, including basic concepts, motivations, potential application scenarios, and an overview of the state-of-the-art research on RIS-enabled ISAC. The theoretical performance analytical frameworks of RIS-enabled ISAC and their corresponding results are also discussed. Based on this, several critical issues are identified and elaborated on, including signal processing technologies such as angle and Delay-Doppler information acquisition, and air interface technologies such as beamforming designs. Finally, the book concludes with future trends and open issues for further research. The book would be beneficial for researchers, graduate students, and industry professionals who wish to gain a comprehensive understanding of the latest developments and challenges in RIS-enabled ISAC. By providing insights into the potential of RIS-enabled ISAC and the technical challenges that need to be addressed, the book can aid in the development of practical solutions for next-generation wireless networks and contribute to the advancement of the field of wireless communications.
