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Sommario/riassunto	This book begins with discussing the fundamentals of Simultaneously Transmitting and Reflecting Surfaces (STARS) from the electromagnetic (EM) and communication perspectives. The basic signal and channel models for employing STARS in wireless communications is introduced as well. Then, the different categories and possible hardware implementation of STARS are highlighted. Next, the authors focus on attention to the STARS-aided wireless communications. The authors

provide a comprehensive performance analysis of STARS with the outage probability, diversity gain and power scaling laws. Moreover, the operating protocols and corresponding beamforming design of STARS are discussed under different phase-shift models. As a further advance, the application of machine learning tools in STAR-aided wireless communications is introduced for addressing the beamforming design and resource allocation problems. The novel STARS-aided integrated sensing and communications (ISAC) in future wireless networks are also discussed with several case studies. Within this book, readers will find an extensive exploration of the STARS concept. The content encompasses a thorough survey of STARS research, covering principles, implementation, performance evaluation and applications. By presenting a comprehensive review of the STARS family, this book serves as a valuable resource for gaining insight into the complete pipeline of STARS research. Finally, the authors conclude the book by highlighting several future research directions for STARS. This book targets graduate, undergraduate, and postgraduate students as well as researchers working in wireless communications. Wireless communication engineers in industry and government will also want to purchase this book.p>.