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Nota di contenuto	Introduction -- 6G Use Cases, Requirements, and Metrics -- 6G Enabling Technologies -- Physical Layer Design Challenges for 6G Wireless -- PHY-Layer Design Challenges in Reconfigurable Intelligent Surface Aided 6G Wireless Networks -- Millimeter-wave and Terahertz Spectrum for 6G Wireless -- Challenges in Transport Layer Design for Terahertz Communication-based 6G Networks -- Mode Hopping for Anti-Jamming in 6G Wireless Communications -- Hybrid Lightwave/RF Connectivity for 6G Wireless Networks -- Resource Allocation in 6G Optical Wireless Systems -- Machine Type Communications in 6G -- Edge Intelligence in 6G Systems -- 6G CloudNet: Towards a Distributed, Autonomous, and Federated AI-Enabled Cloud and Edge Computing -- Cloud Fog Architectures in 6G Networks -- Towards a Fully Virtualized, Cloudified, and Slicing-aware RAN for 6G Mobile Networks -- Federated Learning in 6G Mobile Wireless Networks -- Role of Open-source in6G Wireless Networks -- The Intersection of

Blockchain and 6G Technologies -- Role of Quantum Technology in 6G -- Post-quantum Cryptography in 6G -- 6G: Open Issues and Concluding Remarks.

Sommario/riassunto

This book is the world’s first book on 6G Mobile Wireless Networks that aims to provide a comprehensive understanding of key drivers, use cases, research requirements, challenges and open issues that are expected to drive 6G research. In this book, we have invited world-renowned experts from industry and academia to share their thoughts on different aspects of 6G research. Specifically, this book covers the following topics: 6G Use Cases, Requirements, Metrics and Enabling Technologies, PHY Technologies for 6G Wireless, Reconfigurable Intelligent Surface for 6G Wireless Networks, Millimeter-wave and Terahertz Spectrum for 6G Wireless, Challenges in Transport Layer for Tbit/s Communications, High-capacity Backhaul Connectivity for 6G Wireless, Cloud Native Approach for 6G Wireless Networks, Machine Type Communications in 6G, Edge Intelligence and Pervasive AI in 6G, Blockchain: Foundations and Role in 6G, Role of Open-source Platforms in 6G, and Quantum Computing and 6G Wireless. The overarching aim of this book is to explore the evolution from current 5G networks towards the future 6G networks from a service, air interface and network perspective, thereby laying out a vision for 6G networks. This book not only discusses the potential 6G use cases, requirements, metrics and enabling technologies, but also discusses the emerging technologies and topics such as 6G PHY technologies, reconfigurable intelligent surface, millimeter-wave and THz communications, visible light communications, transport layer for Tbit/s communications, high-capacity backhaul connectivity, cloud native approach, machine-type communications, edge intelligence and pervasive AI, network security and blockchain, and the role of open-source platform in 6G. This book provides a systematic treatment of the state-of-the-art in these emerging topics and their role in supporting a wide variety of verticals in the future. As such, it provides a comprehensive overview of the expected applications of 6G with a detailed discussion of their requirements and possible enabling technologies. This book also outlines the possible challenges and research directions to facilitate the future research and development of 6G mobile wireless networks.