

1. Record Nr.	UNINA9911018950503321
Autore	Montlouis Webert
Titolo	Massive MIMO for Future Wireless Communication Systems : Technology and Applications
Pubbl/distr/stampa	Newark : , : John Wiley & Sons, Incorporated, , 2025 ©2025
ISBN	9781394228331 1394228333 9781394228324 1394228325 9781394228317 1394228317
Edizione	[1st ed.]
Descrizione fisica	1 online resource (483 pages)
Altri autori (Persone)	ImoizeAgbotiname Lucky
Disciplina	621.384
Soggetti	MIMO systems Wireless communication systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Cover -- Title Page -- Copyright -- Contents -- About the Editors -- List of Contributors -- Preface -- Acknowledgments -- Chapter 1 Fundamentals of Wireless Communications: Massive MIMO Essentials for 6G and Beyond -- 1.1 Introduction -- 1.1.1 A Brief History of Wireless Communication -- 1.1.2 Key Highlights of the Chapter -- 1.1.3 Chapter Organization -- 1.2 Digital and Analog Sources -- 1.3 Deterministic and Random Waveforms -- 1.4 Propagation of Electromagnetic Waves -- 1.5 Information Measures -- 1.6 Channel and Information -- 1.7 Modulation and Demodulation -- 1.8 Massive MIMO -- 1.8.1 Motivation for Massive MIMO in 6G and Beyond -- 1.8.2 The Potential of Massive MIMO Technology -- 1.9 Security and Privacy of Wireless Systems -- 1.9.1 Identifying and Resolving Vulnerabilities and Threats in Wireless Systems -- 1.9.2 Security and Privacy Issues in Wireless Systems -- 1.9.2.1 Security Issues in Massive MIMO Systems -- 1.9.2.2 Probable Privacy Issues in Massive MIMO Systems -- 1.10 Conclusion -- References -- Chapter

Authoritative resource discussing the development of advanced massive multiple input multiple output (MIMO) techniques and algorithms for application in 6G. Massive MIMO for Future Wireless Communication Systems analyzes applications and technology trends for massive multiple input multiple output (MIMO) in 6G and beyond, presenting a unified theoretical framework for analyzing the fundamental limits of massive MIMO that considers several practical constraints. In addition, this book develops advanced signal-processing algorithms to enable massive MIMO applications in realistic environments. The book looks closer at applying techniques to massive MIMO in order to meet practical network constraints in 6G networks, such as interference, pathloss, delay, and traffic outage, and provides new insights into real-world deployment scenarios, applications, management, and associated benefits of robust, provably secure, and efficient security and privacy schemes for massive MIMO wireless communication networks. To aid in reader comprehension, this book includes a glossary of terms, resources for further reading via a detailed bibliography, and useful figures and summary tables throughout. With contributions from industry experts and researchers across the world and edited by two leaders in the field, Massive MIMO for Future Wireless Communication Systems includes information on:

- \* Signal processing algorithms for cell-free massive MIMO systems and advanced mathematical tools to analyze multiuser dynamics in wireless channels
- \* Bit error rate (BER) performance comparisons of different detectors in conventional cell-free massive MIMO systems
- \* Enhancement of massive MIMO using deep learning-based channel estimation and cell-free massive MIMO for wireless federated learning
- \* Low-complexity, self-organizing, and energy-efficient massive MIMO architectures, including the prospects and challenges of Terahertz MIMO systems

Massive MIMO for Future Wireless Communication Systems is an essential resource on the subject for industry and academic researchers, advanced students, scientists, and engineers in the fields of MIMO, antennas, sensing and channel measurements, and modeling technologies.

---