1. Record Nr. UNINA9911019635003321

Titolo	Advances in multiuser detection / / edited by Michael L. Honig
Pubbl/distr/stampa	Hoboken, N.J., : Wiley, c2009
ISBN	9786612278518 9781282278516 1282278517 9780470473818 0470473819 9780470473801 0470473800
Edizione	[1st edition]
Descrizione fisica	1 online resource (517 p.)
Collana	Wiley series in telecommunications and signal processing
Altri autori (Persone)	HonigMichael L
Disciplina	621.382
Soggetti	Multiuser detection (Telecommunication) Signal theory (Telecommunication)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preface. -- Contributors. -- 1 Overview of Multiuser Detection (Michael L. Honig). -- 1.1 Introduction. -- 1.2 Matrix Channel Model. -- 1.3 Optimal Multiuser Detection. -- 1.4 Linear Detectors. -- 1.5 Reduced-Rank Estimation. -- 1.6 Decision-Feedback Detection. -- 1.7 Interference Mitigation at the Transmitter. -- 1.8 Overview of Remaining Chapters. -- References. -- 2 Iterative Techniques (Alex Grant and Lars K. Rasmussen). -- 2.1 Introduction. -- 2.2 Iterative Joint Detection for Uncoded Data. -- 2.3 Iterative Joint Decoding for Coded Data. -- 2.4 Concluding Remarks. -- References. -- 3 Blind Multiuser Detection in Fading Channels (Daryl Reynolds, H. Vincent Poor, and Xiaodong Wang). -- 3.1 Introduction. -- 3.2 Signal Models and Blind Multiuser Detectors for Fading Channels. -- 3.3 Performance of Blind Multiuser Detectors. -- 3.4 Bayesian Multiuser Detection for Long-Code CDMA. -- 3.5 Multiuser Detection for Long-Code CDMA in Fast-Fading Channels. -- 3.6 Transmitter-Based Multiuser Precoding for Fading Channels. -- 3.7 Conclusion. -- References. -- 4 Performance with Random Signatures (Matthew J. M. Peacock, Iain B. Collings, and

Michael L. Honig). -- 4.1 Random Signatures and Large System Analysis. -- 4.2 System Models. -- 4.3 Large System Limit. -- 4.4 Random Matrix Terminology. -- 4.5 Incremental Matrix Expansion. -- 4.6 Analysis of Downlink Model. -- 4.7 Spectral Efficiency. -- 4.8 Adaptive Linear Receivers. -- 4.9 Other Models and Extensions. -- 4.10 Bibliographical Notes. -- References. -- 5 Generic Multiuser Detection and Statistical Physics <Dongning Guo and Toshiyuki Tanaka). -- 5.1 Introduction. -- 5.2 Generic Multiuser Detection. -- 5.3 Main Results: Single-User Characterization. -- 5.4 The Replica Analysis of Generic Multiuser Detection. -- 5.5 Further Discussion. -- 5.6 Statistical Physics and the Replica Method. -- 5.7 Interference Cancellation. -- 5.8 Concluding Remarks. -- 5.9 Acknowledgments. -- References. -- 6 Joint Detection for Multi-Antenna Channels (Antonia Tulino, Matthew R. McKay, Jeffrey G. Andrews,.
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Sommario/riassunto

A Timely Exploration of Multiuser Detection in Wireless Networks During the past decade, the design and development of current and emerging wireless systems have motivated many important advances in multiuser detection. This book fills an important need by providing a comprehensive overview of crucial recent developments that have occurred in this active research area. Each chapter is contributed by noted experts and is meant to serve as a self-contained treatment of the topic. Coverage includes: . Linear and decision feedback methods. Iterative multiuser detection and decoding. Multiuser detection in the presence of channel impairments. Performance analysis with random signatures and channels. Joint detection methods for MIMO channels. Interference avoidance methods at the transmitter. Transmitter precoding methods for the MIMO downlink This book is an ideal entry point for exploring ongoing research in multiuser detection and for learning about the field's existing unsolved problems and issues. It is a valuable resource for researchers, engineers, and graduate students who are involved in the area of digital communications.