1. Record Nr. UNINA9910458581603321

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| Titolo | MIMO wireless communications [[electronic resource] ] : from real-world propagation to space-time code design / / Claude Oestges and Bruno Clerckx |
| Pubbl/distr/stampa | Amsterdam ; ; Boston ; ; London, : Academic Press, 2007 |
| ISBN | 1-281-01992-5<br>9786611019921<br>0-08-054998-5 |
| Edizione | [1st ed.] |
| Descrizione fisica | 1 online resource (477 p.) |
| Altri autori (Persone) | ClerckxBruno |
| Disciplina | 621.384 |
| Soggetti | MIMO systems<br>Wireless communication systems<br>Electronic books. |
| 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 (p. 423-443) and index. |
| Nota di contenuto | Front Cover; MIMO Wireless Communications; Copyright Page; Contents; List of Figures; List of Tables; Preface; List of Abbreviations; List of Symbols; About the Authors; Chapter 1 Introduction to multi-antenna communications; 1.1 Brief history of array processing; 1.2 Space-time wireless channels for multi-antenna systems; 1.3 Exploiting multiple antennas in wireless systems; 1.3.1 Diversity techniques; 1.3.2 Multiplexing capability; 1.4 Single-input multiple-output systems; 1.4.1 Receive diversity via selection combining; 1.4.2 Receive diversity via gain combining<br>1.4.3 Receive diversity via hybrid selection/gain combining1.5 Multiple-input single-output systems; 1.5.1 Switched multibeam antennas; 1.5.2 Transmit diversity via matched beamforming; 1.5.3 Null-steering and optimal beamforming; 1.5.4 Transmit diversity via space-time coding; 1.5.5 Indirect transmit diversity; 1.6 Multiple-input multiple-output systems; 1.6.1 MIMO with perfect transmit channel knowledge; 1.6.2 MIMO without transmit channel knowledge; 1.6.3 MIMO with partial transmit channel knowledge; 1.7 Multiple antenna techniques in commercial wireless systems |

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2.2.2 Multi-polarized channels2.3 Geometry-based models; 2.3.1 One-ring model; 2.3.2 Two-ring model; 2.3.3 Combined elliptical-ring model; 2.3.4 Elliptical and circular models; 2.3.5 Extension of geometry-based models to dual-polarized channels; 2.4 Empirical models; 2.4.1 Extended Saleh-Valenzuela model; 2.4.2 Stanford University Interim channel models; 2.4.3 COST models; 2.5 Standardized models; 2.5.1 IEEE 802.11 TGn models; 2.5.2 IEEE 802.16 d/e models; 2.5.3 3GPP/3GPP2 spatial channel models; 2.6 Antennas in MIMO systems; 2.6.1 About antenna arrays; 2.6.2 Mutual coupling Chapter 3 Analytical MIMO channel representations for system design3. 1 General representations of correlated MIMO channels; 3.1.1 Rayleigh fading channels; 3.1.2 Ricean fading channels; 3.1.3 Dual-polarized channels; 3.1.4 Double-Rayleigh fading model for keyhole channels; 3.2 Simplified representations of Gaussian MIMO channels; 3.2.1 The Kronecker model; 3.2.2 Virtual channel representation; 3.2.3 The eigenbeam model; 3.3 Propagation-motivated MIMO metrics; 3.3.1 Comparing models and correlation matrices; 3.3.2 Characterizing the multipath richness
3.3.3 Measuring the non-stationarity of  MIMO channels

Sommario/riassunto

Uniquely, this book proposes robust space-time code designs for real-world wireless channels. Through a unified framework, it emphasizes how propagation mechanisms such as space-time frequency correlations and coherent components impact the MIMO system performance under realistic power constraints. Combining a solid mathematical analysis with a physical and intuitive approach to space-time coding, the book progressively derives innovative designs, taking into consideration that MIMO channels are often far from ideal.The various chapters of this book provide an essential, complete and r