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| 1. Record Nr.           | UNINA9910139512703321   |
| Autore                  | Liu Wei <1974->   |
| Titolo                  | Wideband beamforming [[electronic resource] ] : concepts and techniques // Wei Liu, Stephan Weiss   |
| Pubbl/distr/stampa      | Chichester, West Sussex, U.K. ; ; Hoboken, N.J., : Wiley, 2010  |
| ISBN                    | 1-282-55169-8<br>9786612551697<br>0-470-66117-8<br>0-470-66118-6  |
| Descrizione fisica      | 1 online resource (304 p.)  |
| Collana                 | Wireless Communications and Mobile Computing ; ; v.17   |
| Altri autori (Persone)  | WeissStephan <1968->  |
| Disciplina              | 621.382/2   |
| Soggetti                | Beamforming<br>Antenna radiation patterns<br>Adaptive antennas<br>Adaptive signal processing<br>Adaptive filters<br>Broadband communication systems   |
| 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       | Wideband Beamforming; About the Series Editors; Contents; Preface; 1 Introduction; 1.1 Array Signal Processing; 1.2 Narrowband Beamforming; 1.3 Wideband Beamforming; 1.4 Wideband Beam Steering; 1.4.1 Beam Steering for Narrowband Arrays; 1.4.2 Beam Steering for Wideband Arrays; 1.4.3 A Unified Interpretation; 1.5 Summary; 2 Adaptive Wideband Beamforming; 2.1 Reference Signal-Based Beamformer; 2.1.1 Least Mean Square Algorithm; 2.1.2 Normalized Least Mean Square Algorithm; 2.1.3 Recursive Least Squares Algorithm; 2.1.4 Comparison of Computational Complexities 2.1.5 Frequency-Domain and Subband Adaptive Algorithms2.1.6 Simulations; 2.2 Linearly Constrained Minimum Variance Beamforming; 2.2.1 A Simple Formulation of Constraints; 2.2.2 Optimum Solution to the LCMV Problem; 2.2.3 Frost's Algorithm for LCMV Beamforming; 2.2.4 Simulations; 2.3 Constraints Design for LCMV Beamforming; 2.3.1 Eigenvector Constraint Design; 2.3.2 Design Example; 2.3.3 Application |

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2.5 Other Minimum Variance Beamformers 2.5.1 Soft Constrained Minimum Variance Beamformer; 2.5.2 Correlation Constrained Minimum Variance Beamformer; 2.6 Robust Adaptive Beamforming; 2.6.1 Spatially Extended Constraints; 2.6.2 Norm-Restrained Approaches; 2.7 Summary; 3 Subband Adaptive Beamforming; 3.1 Fundamentals of Filter Banks; 3.1.1 Basic Multirate Operations; 3.1.2 Perfect Reconstruction Condition for Filter Banks; 3.1.3 Oversampled Modulated Filter Banks; 3.2 Subband Adaptive Filtering; 3.3 General Subband Adaptive Beamforming; 3.3.1 Reference Signal Based Beamformer  
3.3.2 Generalized Sidelobe Canceller 3.3.3 Reconstruction of the Fullband Beamformer; 3.3.4 Simulations; 3.4 Subband Adaptive GSC; 3.4.1 Structure; 3.4.2 Analysis of the Computational Complexity; 3.4.3 Reconstruction of the Fullband Beamformer; 3.4.4 Simulations; 3.5 Temporally/Spatially Subband-Selective Beamforming; 3.5.1 Partially Adaptive GSC; 3.5.2 Temporally/Spatially Subband-Selective Blocking Matrix; 3.5.3 Temporally/Spatially Subband-Selective Transformation Matrix; 3.5.4 Application to Subband Adaptive GSC; 3.5.5 Extension to the General Subband Adaptive Beamforming Structure  
3.5.6 Simulations 3.6 Frequency-Domain Adaptive Beamforming; 3.6.1 Frequency-Domain Formulation; 3.6.2 Constrained Frequency-Domain Adaptive Algorithm; 3.6.3 Frequency-Domain GSC; 3.6.4 Simulations; 3.7 Transform-Domain Adaptive Beamforming; 3.7.1 Transform-Domain GSC; 3.7.2 Subband-Selective Transform-Domain GSC; 3.7.3 Simulations; 3.8 Summary; 4 Design of Fixed Wideband Beamformers; 4.1 Iterative Optimization; 4.1.1 Traditional Methods; 4.1.2 Convex Optimization; 4.2 The Least Squares Approach; 4.2.1 Standard Formulation; 4.2.2 Constrained Least Squares; 4.3 The Eigenfilter Approach  
4.3.1 Standard Approach

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## Sommario/riassunto

This book provides an excellent reference for all professionals working in the area of array signal processing and its applications in wireless communications. Wideband beamforming has advanced with the increasing bandwidth in wireless communications and the development of ultra wideband (UWB) technology. In this book, the authors address the fundamentals and most recent developments in the field of wideband beamforming. The book provides a thorough coverage of the subject including major sub-areas such as sub-band adaptive beamforming, frequency invariant beamformin

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