

Springer for R&D Electronics



Springer for R&D – <u>rd.springer.com</u>

- **✓** Immediate Access to Quality STM Research
 - —Thousands of eBooks, Journals and eReference Works on one platform
 - Customized collections for your Industry
- **✓** Designed for Corporate Researchers
 - A reliable resource delivering results faster, more relevant and more efficient
- **✓** Business Models for Companies of all Size
 - Flexible, customizable purchase models and pricing for maximum ROI



Electronics Collection

Springer's Electronics Content Solutions delivers a comprehensive set eBooks and eJournals covering topical information from leading researchers on subjects ranging from fundamental studies of electrochemistry and materials to leading edge research on bioanalytical chemistry and myriad other topics. Springer Content Collections are an ideal resource for corporate clients, providing simple access to a wide-ranging library of relevant information in a single location with Springer's innovative tools and industry leading features.

- Access to more than 250 journals
 - 1997 to current
- Over 9000 eBooks
 - -2005 to current





Journal Highlights

- Journal of Electronic Materials
- Journal of Digital Imaging
- International Journal of Information Security
- Circuits, Systems, and Signal Processing
- Journal of Materials Science: Materials in Electronics
- Nano Research
- Optical Review
- Journal of Solid State Electrochemistry
- Microsystem Technologies: Micro- and Nanosystems Information
 Storage and Processing Systems
- Photonic Network Communications
- Ionics: International Journal of Ionics



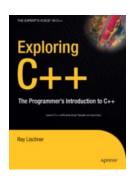




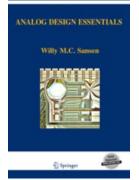


Book Highlights

- Exploring C++
- Recent Advances in Parallel Virtual Machine and Message Passing Interface
- Compiler Construction
- Computer Aided Verification
- Tools and Algorithms for the Construction and Analysis of Systems
- System Verilog for Verification
- Static Timing Analysis for Nanometer Designs
- Micro- and Opto-Electronic Materials and Structures: Physics, Mechanics, Design,
 Reliability, Packaging
- Analog Design Essentials
- Three Dimensional Integrated Circuit Design







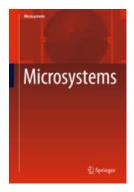


Book Series Highlights

- Microsystems
- Lecture Notes in Electrical Engineering
- Lecture Notes in Computer Science
- Analog Circuits and Signal Processing
- Power Electronics and Power Systems
- Electronic Materials: Science & Technology
- Signals and Communication Technology
- Remote Sensing and Digital Image Processing









Handbook and Reference Work Highlights

- Machine Vision Handbook
- Encyclopedia of Optimization
- Springer Handbook of Speech Processing
- Springer Handbook of Experimental Solid Mechanics
- Encyclopedia of Multimedia









Springer Reference

SpringerReference.com - No More Dated Reference Works

From Springer, the innovation leader in STM publishing, comes a revolutionary new offering for academic and corporate libraries. SpringerReference delivers access to the all Springer Live References, constantly updated by a dynamic new publishing process and covering all areas of STM research.

- A World-Class Collection of Living eReferences
- Top Quality, Constantly Updated and Peer Reviewed
- All eReferences, Including Those in Production, on One Platform

Titles included: Computer Science and Communications Dictionary, Encyclopedia of Algorithms, Encyclopedia of Biometrics, Encyclopedia of Cryptography and Security, Encyclopedia of Database Systems, Encyclopedia of GIS, Encyclopedia of Machine Learning, Encyclopedia of Multimedia, Handbook of Semantic Web Technologies



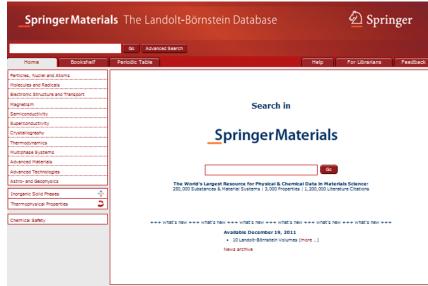
Springer Materials The Landolt-Börnstein Database

Springer Materials

- SpringerMaterials The Landolt-Börnstein Database comprises to date: 400 Landolt-Börnstein volumes, 250,000 substances and 1,200,000 citations
- 44,000 Chemical Safety Documents (REACH Registration, Evaluation, Authorization and Restriction of Chemicals, GHS Globally Harmonized System RoHS Restriction of Hazardous Substances, WEEE Waste from Electrical and Electronic Equipment)

 The world's largest and most renowned Database on Thermophysical Properties, the subset of the DDBST (Dortmund Data Bank Software & Separation Technology) comprising 300,000 data points.

 Linus Pauling Files, the most comprehensive database on inorganic solid phases comprising 190,000 documents



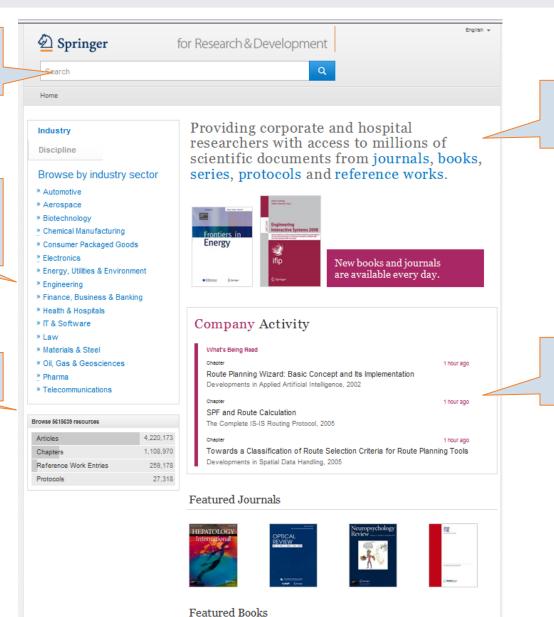
Springer for R&D – Electronics



Easy 'Google' like search available on all pages

> Browse by Industry or Science Discipline

Browse by content type



More than 5 million content items available

Search activity within your company

Springer for R&D – Electronics





Key data of the content item

Cellular Downlink Performance with Covariance-CSIT-Based MIMO Precoding

Kenneth Wu, Thomas Derham, Patrice Coupé



Wireless Personal Communications
March 2012, Volume 63, Issue 2, no 415-430

Abstract

The nature of the trade-off between reduced overhead of channel state information (CSI) and resultant performance losses influences the design of frequency-division duplexed practical cellular systems. One candidate for CSI feedback reduction is the use of covariance-matrix-based CSI at the transmitter (CSIT) in conjunction with linear precoding techniques. This paper analyzes the performance of such systems in the downlink for both single-user (SU-) and multiuser (MU-) multiple-input multiple output (MIMO) in comparison to those using optimal perfect-instantaneous-CSIT-based precoding. In addition, the effectiveness of techniques enforcing frequency domain diversity versus those based on the maximal ergodic channel capacity criterion is evaluated. A novel precoding scheme using covariance matrix information that supports spatial multiplexing in both SU- and MU-MIMO is proposed. Simulation results show that the spectral efficiency loss from covariance-CSIT-based techniques from those utilizing perfect, instantaneous CSIT is shown to be about 1 dB in a highly correlated urban channel environment for both SU- and MU-MIMO, whereas for microcell environments it is between 3 and 4 dB.



» Export citations

Related content based on your search criteria using semantic data



Extensive data on the content item

Export Citations