

1. Record Nr.	UNINA9910460361003321
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Titolo	Aggregation in economic analysis : an introduction survey // by H. A. John Green
Pubbl/distr/stampa	Princeton, New Jersey : , : Princeton University Press, , 1964 ©1964
ISBN	1-4008-7666-4
Descrizione fisica	1 online resource (140 p.)
Collana	Princeton Legacy Library
Disciplina	330.0182
Soggetti	Econometrics Set theory 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 and index.
Nota di contenuto	Front matter -- Preface -- Contents -- PART I. INTRODUCTION -- CHAPTER 1. The problem of aggregation -- PART II. GROUPING OF VARIABLES IN A SINGLE UTILITY OR PRODUCTION FUNCTION -- CHAPTER 2. The concept of functional separability -- CHAPTER 3. Two-stage maximization -- CHAPTER 4. Homogeneous functional separability -- PART III. AGGREGATION OF ECONOMIC RELATIONS -- CHAPTER 5. Degrees of freedom at a maximum: the importance of linearity -- CHAPTER 6. Degrees of freedom restricted: optimal conditions of exchange and production -- CHAPTER 7. Aggregation when optimal conditions of production or exchange are satisfied: discussion -- CHAPTER 8. Other restrictions on the number of degrees of freedom -- CHAPTER 9. Intermediate products and aggregation problems of input-output analysis -- PART IV. THE MEASUREMENT OF CAPITAL -- CHAPTER 10. "Capital" in models of economic growth -- CHAPTER 11. Technical progress and capital measurement -- PART V. INCONSISTENT AGGREGATION -- CHAPTER 12. Aggregation and estimation -- CHAPTER 13. The aggregate production function and the measurement of economic growth -- PART VI. CONCLUSION -- CHAPTER 14. Summary: factors in the selection of an aggregation procedure -- List of References -- Index

Sommario/riassunto

Professor Green discusses the definition of consistent aggregation and the problem of grouping variables in a single equation; he deals with the aggregation of equations and the probable errors; and summarizes, with reference to the text, the considerations involved in selecting an appropriate form of aggregation. The author's survey presents a well-balanced overview and analysis of aggregation, and makes readily accessible for the first time much material otherwise difficult to obtain. Originally published in 1964. The Princeton Legacy Library uses the latest print-on-demand technology to again make available previously out-of-print books from the distinguished backlist of Princeton University Press. These editions preserve the original texts of these important books while presenting them in durable paperback and hardcover editions. The goal of the Princeton Legacy Library is to vastly increase access to the rich scholarly heritage found in the thousands of books published by Princeton University Press since its founding in 1905.

2. Record Nr.	UNINA9910139404003321
Autore	Hueber Gernot
Titolo	Multi-mode/multi-band RF transceivers for wireless communications : advanced techniques, architectures, and trends // edited by Gernot Hueber, Robert Bogdan Staszewski
Pubbl/distr/stampa	[Hoboken, New Jersey] : , : Wiley, , c2011 [Piscataway, New Jersey] : , : IEEE Xplore, , [2010]
ISBN	1-283-37160-X 9786613371607 0-470-63444-8 0-470-63445-6
Edizione	[1st edition]
Descrizione fisica	1 online resource (610 p.)
Altri autori (Persone)	Staszewski Robert Bogdan <1965-> Hueber Gernot <1972->
Disciplina	384.5/3 384.53
Soggetti	Radio - Transmitter-receivers Wireless communication systems - Equipment and supplies - Design and construction Cell phones - Design and construction Wireless LANs - Equipment and supplies - Design and construction
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	Contributors -- Preface -- I TRANSCEIVER CONCEPTS AND DESIGN -- 1 Software-Defined Radio Front Ends (Jan Craninckx) -- 1.1 Introduction -- 1.2 System-Level Considerations -- 1.3 Wideband LO Synthesis -- 1.4 Receiver Building Blocks -- 1.5 Transmitter Building Blocks -- 1.6 Calibration Techniques -- 1.7 Full SDR Implementation -- 1.8 Conclusions -- 2 Software-Defined Transceivers (Gio Cafaro and Bob Stengel) -- 2.1 Introduction -- 2.2 Radio Architectures -- 2.3 SDR Building Blocks -- 2.4 Example of an SDR Transceiver -- 3 Adaptive Multi-Mode RF Front-End Circuits (Aleksandar Tasic) -- 3.1 Introduction -- 3.2 Adaptive Multi-Mode Low-Power Wireless RF IC Design -- 3.3 Multi-Mode Receiver Concept -- 3.4 Design of a Multi-Mode Adaptive RF Front End -- 3.5 Experimental Results for the Image-Reject Down-Converter -- 3.6 Conclusions -- 4 Precise Delay Alignment Between Amplitude and Phase/Frequency Modulation Paths in a Digital Polar Transmitter (Khurram Waheed and Robert Bogdan Staszewski) -- 4.1 Introduction -- 4.2 RF Polar Transmitter in Nanoscale CMOS -- 4.3 Amplitude and Phase Modulation -- 4.4 Mechanisms to Achieve Subnanosecond Amplitude and Phase Modulation Path Alignments -- 4.5 Precise Alignment of Multi-Rate Direct and Reference Point Data -- 5 Overview of Front-End RF Passive Integration into SoCs (Hooman Darabi) -- 5.1 Introduction -- 5.2 The Concept of a Receiver Translational Loop -- 5.3 Feedforward Loop Nonideal Effects -- 5.4 Feedforward Receiver Circuit Implementations -- 5.5 Feedforward Receiver Experimental Results -- 5.6 Feedback Notch Filtering for a WCDMA Transmitter -- 5.7 Feedback-Based Transmitter Stability Analysis -- 5.8 Impacts of Nonidealities in Feedback-Based Transmission -- 5.9 Transmitter Building Blocks -- 5.10 Feedback-Based Transmitter Measurement Results -- 5.11 Conclusions and Discussion -- 6 ADCs and DACs for Software-Defined Radio (Michiel Steyaert, Pieter Palmers, and Koen Cornelissens) -- 6.1 Introduction -- 6.2 ADC and DAC Requirements in Wireless Systems. 6.3 Multi-Standard Transceiver Architectures -- 6.4 Evaluating Reconfigurability -- 6.5 ADCs for Software-Defined Radio -- 6.6 DACs for Software-Defined Radio -- 6.7 Conclusions -- II RECEIVER DESIGN -- 7 OFDM Transform-Domain Receivers for Multi-Standard Communications (Sebastian Hoyos) -- 7.1 Introduction -- 7.2 Transform-Domain Receiver Background -- 7.3 Transform-Domain Sampling Receiver -- 7.4 Digital Baseband Design for the TD Receiver -- 7.5 A Comparative Study -- 7.6 Simulations -- 7.7 Gain-Bandwidth Product Requirement for an Op-Amp in a Charge-Sampling Circuit -- 7.8 Sparsity of (GHG)-1 -- 7.9 Applications -- 7.10 Conclusions -- 8 Discrete-Time Processing of RF Signals (Renaldi Winoto and Borivoje Nikolic) -- 8.1 Introduction -- 8.2 Scaling of an MOS Switch -- 8.3 Sampling Mixer -- 8.4 Filter Synthesis -- 8.5 Noise in Switched-Capacitor Filters -- 8.6 Circuit-Design Considerations -- 8.7 Perspective and Outlook -- 9 Oversampled ADC Using VCO-Based Quantizers (Matthew Z. Straayer and Michael H. Perrott) -- 9.1 Introduction -- 9.2 VCO-Quantizer Background -- 9.3 SNDR Limitations for VCO-Based Quantization -- 9.4 VCO Quantizer -ADC Architecture -- 9.5 Prototype -ADC Example with a VCO Quantizer -- 9.6 Conclusions -- References -- 10 Reduced External Hardware and Reconfigurable RF Receiver Front Ends for Wireless Mobile Terminals (Naveen K. Yanduru) -- 10.1 Introduction -- 10.2 Mobile Terminal

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Sommario/riassunto

State-of-the-art and beyond technologies to be used in future multi-mode wireless communication systems. Current and future mobile terminals become increasingly complex because they have to deal with a variety of frequency bands and communication standards. Achieving multiband/multimode functionality (3G and beyond) is especially challenging for the RF-transceiver section. This volume presents cutting-edge physical layer technologies for multi-mode wireless RF transceivers, specifically RF, analog, and mixed-signal and digital circuits and architectures. Providing the most comprehensive treatment of this topic available, it features original contributions from distinguished researchers and professionals from both academia and industry, who anticipate the major trends and needs of future wireless system developments. Divided into four sections, Multi-Mode/Multi-

Band RF Transceivers for Wireless Communications covers: Transceiver concepts and design: software-defined radio front-ends/transceivers, adaptive multi-mode RF front-end circuits, delay alignment between amplitude and phase paths in a digital polar transmitter, and front-end RF passive integration, as well as versatile data converters. Receiver design: OFDM transform-domain receivers for multi-standards, discrete-time processing of RF signals, oversampled ADC using VCO-based quantizers, RF receiver front-ends for mobile terminals, and digitally enhanced alternate path linearization of RF receivers. Transmitter techniques: Linearity and efficiency strategies, CMOS RF power amplifiers for mobiles, and digitally assisted RF architectures. Digital Signal Processing for RF transceivers: RF impairment compensation for future radio systems, techniques for the analysis of digital bang-bang PLLs, and low-power spectrum processors for cognitive radios. The remarkable insight into the essential transceiver building blocks to be used in future multi-mode wireless communication systems makes this an invaluable resource for engineers and researchers from academia and industry working on circuits and architectures of wireless transceivers, as well as for RF design engineers in semiconductor companies and graduate students taking advanced courses on wireless communication circuits.
