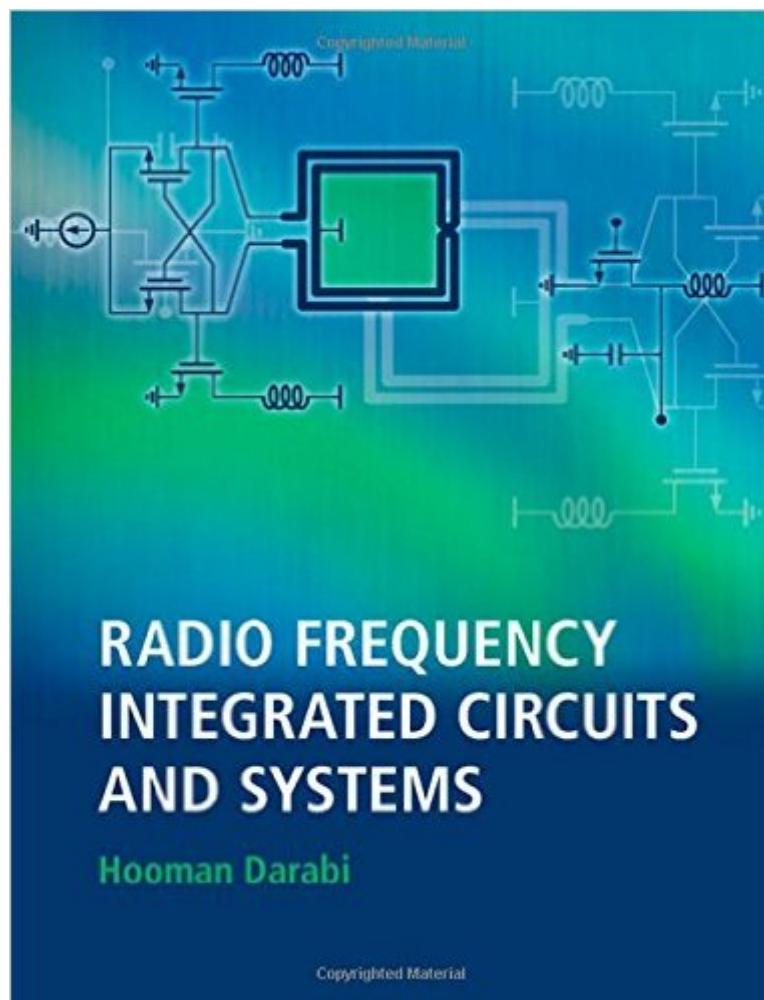


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# Radio Frequency Integrated Circuits And Systems



## Synopsis

Focusing on the core topics of RF IC and system design, this textbook provides the in-depth coverage and detailed mathematical analyses needed to gain a thorough understanding of the subject. Throughout, theory is linked to practice with real-world application examples; practical design guidance is also offered, covering the pros and cons of various topologies, and preparing students for future work in industry. Written for graduate courses on RFICs, this uniquely intuitive and practical book will also be of value to practising RF IC and system designers. Key topics covered include RF components, signals and systems; two-ports; noise; distortion; low-noise amplifiers; mixers; oscillators; power amplifiers; and transceiver architectures. Lecture slides and a solutions manual for instructors are provided online to complete the course package.

## Book Information

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## Customer Reviews

Walking down the halls of a large RFIC design company for the last decade, I notice the same few text books on the desks of most of the designers, especially recent graduates. These are excellent academic texts, but were written when CMOS RFIC design was more of a research concept. Now that we are well into the 2nd decade of the CMOS renaissance, there has been a lot of real world design experience gained. Dr. Darabi is someone whose designs have been manufactured into CMOS RFIC's for hundreds of millions of wireless devices currently in use around the world today. His insights and advice are greatly sought out amongst peers and colleagues. His book starts out by reviewing the fundamental equations of the electromagnetic pioneers Gauss, Faraday, Kirchhoff,

Maxwell etc. With this reaffirmed foundation, the reader is led to individual chapters on modulation, filters, noise and distortion. Next come chapters dedicated to each block in the RF signal chain: LNA's, Mixers, LO's, all the way to PA's. Concluding with an RX TX transceiver architecture overview, including current packaging and production concerns. The reader can follow the book as a whole, or skip to a specific chapter and dig in to the loads of equations, diagrams, problem solving questions and answers, as well as the many references to other books and research papers. This book is an excellent tool for someone researching design concepts, or examining their current RFIC circuits and systems designs. Did you know flicker noise is considered Gaussian, but is Laurentzian? Is it possible to design a low noise, high linearity receiver, but with a mixer as 'first' block in chain? What are some good design techniques to help prevent signal coupling within today's complex SoC's? These and many other questions are answered.

Good book. I took a class from professor Darabi and he was teaching by this book. Well organized and easy to follow. It gives a structured overview of main RF topics. I have Razavi's book as well and these two were a great set to have for me. I would recommend this book to my coworkers.

I think this book is one of the up to date and comprehensive ones in its realm. It can be useful for students and RF engineers to understand how real world transceivers and circuits work. Although, at first glance, it may seem hard to read but I suggest trying to study one topic you have read known and have knowledge about it, and then you will find out this book gives you more insight about it and tries to give you new intuitive and engineering view to it so that you can make your knowledge deeper and apply it in real circuit design. For example, most RF books talked about system design. However, I think this is the only new one that addresses topics like reciprocal mixing and Harmonic mixing in detail. I am sure you will find new information/methods that are practical and will help you to design/understand feasible circuits. The book starts to build fundamentals like circuit theory, random process and etc. and then step by step goes to circuit and transceiver design. The author is well known in RFIC realm as he tried to combine his academic and industrial knowledge here to share it with you. Finally, I suggest having it in your library because I am sure you will enjoy its reading and find new ideas!

Very good book for practical RFIC design. Good balance between systems and circuits. I particularly like the LNA and VCO chapters, they cover the topics in good details and with emphasis on practical implementations.

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