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To the memory of my parents

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PREFACE TO THE SECOND EDITION

In the 14 years since the first edition of this book, RF IC design has experienced a dramatic metamorphosis. Innovations in transceiver architectures, circuit topologies, and device structures have led to highly-integrated “radios” that span a broad spectrum of applications. Moreover, new analytical and modeling techniques have considerably improved our understanding of RF circuits and their underlying principles. A new edition was therefore due.

The second edition differs from the first in several respects:

1. I realized at the outset—three-and-a-half years ago—that simply adding “patches” to the first edition would not reflect today’s RF microelectronics. I thus closed the first edition and began with a clean slate. The two editions have about 10% overlap.
2. I wanted the second edition to contain greater pedagogy, helping the reader understand both the fundamentals and the subtleties. I have thus incorporated hundreds of examples and problems.
3. I also wanted to teach *design* in addition to analysis. I have thus included step-by-step design procedures and examples. Furthermore, I have dedicated Chapter 13 to the step-by-step transistor-level design of a dual-band WiFi transceiver.
4. With the tremendous advances in RF design, some of the chapters have inevitably become longer and some have been split into two or more chapters. As a result, the second edition is nearly three times as long as the first.

Suggestions for Instructors and Students

The material in this book is much more than can be covered in one quarter or semester. The following is a possible sequence of the chapters that can be taught in one term with reasonable depth. Depending on the students’ background and the instructor’s preference, other combinations of topics can also be covered in one quarter or semester.