Microwave Amplifier and Active Circuit Design Using the Real Frequency Technique
Pierre Jarry, Jacques N. Beneat


DEVELOPMENT

Describes the use of the Real Frequency Technique for designing and realizing RF/microwave amplifiers and circuits

This book focuses on the authors' Real Frequency Technique (RFT) and its application to a wide variety of multi-stage microwave amplifiers and active filters, and passive equalizers for radar pulse shaping and antenna return loss applications. The first two chapters review the fundamentals of microwave amplifier design and provide a description of the RFT. Each subsequent chapter introduces a new type of amplifier or circuit design, reviews its design problems, and explains how the RFT can be adapted to solve these problems. The authors take a practical approach by summarizing the design steps and giving numerous examples of amplifier realizations and measured responses.

• Provides a complete description of the RFT as it is first used to design multistage lumped amplifiers using a progressive optimization of the equalizers, leading to a small number of parameters to optimize simultaneously

• Presents modifications to the RFT to design trans-impedance microwave amplifiers that are used for photodiodes acting as high impedance current sources

• Discusses the methods using the RFT to optimize equalizers made of lossy distributed networks

• Covers methods and examples for designing standard linear multi-stage power amplifiers and those using arborescent structures

• Describes how to use the RFT to design multi-stage active filters
• Shows the flexibility of the RFT to solve a variety of microwave circuit design problems like the problem of passive equalizer design for Radar receivers

• Examines a possible method for the synthesis of microwave antennas using the RFT

*Microwave Amplifier and Active Circuit Design Using the Real Frequency Technique* is intended for researchers and RF and microwave engineers but is also suitable for advanced graduate students in circuit design.

Dr. Beneat and Dr. Jarry are members of the editorial board of Wiley’s *International Journal of RF and Microwave Computer Aided Engineering*. They have published seven books together, including *Advanced Design Techniques and Realizations of Microwave and RF Filters* (Wiley-IEEE 2008), *Design and Realizations of Miniaturized Fractals RF and Microwave Filters* (Wiley 2009), *Miniaturized Microwave Fractal Filters—M2F2* (Wiley 2012), and *RF and Microwave Electromagnetism* (Wiley-ISTE 2014).

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**ABOUT THE AUTHOR**

**Pierre Jarry, PhD**, is a professor at the University of Bordeaux, France, and also serves the French National Science Research Center (CNRS) laboratory IMS (Intégration du Materiau au Système). Previously he was professor at the University of Brest, Brest, France, where he created and directed the Laboratory of Electronics and Telecommunication Systems, which is affiliated with the CNRS. His research focuses on the areas of microwave filters (localized, distributed, multimode, and genetic), and microwave amplifiers (lumped, distributed and lossy distributed, power, and multi-stage).

**Jacques N. Beneat, PhD**, is Professor of Electrical and Computer Engineering at Norwich University, Vermont, USA. He received his PhD in electrical and computer engineering from Worcester Polytechnic Institute, Massachusetts, USA, with a focus in advanced microwave structures for satellite communications.

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