An in-depth survey of the design and REALIZATIONS of miniaturized fractal microwave and RF filters

Engineers are continually searching for design methods that can satisfy the ever-increasing demand for miniaturization, accuracy, reliability, and fast development time. Design and Realizations of Miniaturized Fractal RF and Microwave Filters provides RF and microwave engineers and researchers, advanced graduate students, and wireless and telecommunication engineers with the knowledge and skills to design and realize miniaturized fractal microwave and RF filters. This book is an essential resource for the realization of portable and cellular phones, WiFi, 3G and 4G, and satellite networks.

The text focuses on the synthesis and fabrication of miniaturized fractal filters with symmetrical and asymmetrical frequency characteristics in the C, X and Ku bands, though applications to other frequency bands are considered. Readers will find helpful guidance on:

- Miniaturized filters in bilevel fashion
- Simplified methods for the synthesis of pseudo-elliptic electrical networks
Methods for extracting coupling coefficients and external quality factors from simulations of the RF/microwave structure

Methods for matching theoretical couplings to couplings of structure

Including studies of the real-world performance of fractal resonators and sensitivity analyses of suspended substrate realizations, this is a definitive resource for both practicing engineers and students who need timely insight on fractal resonators for compact and low-power microwave and RF applications.

ABOUT THE AUTHOR

Pierre Jarry graduated from the University of Limoges. As a professor at University of Brest, he directed the Laboratory of Electronics and Telecommunication Systems (LEST), affiliated with the French National Center for Scientific Research (CNRS). He later joined the University of Bordeaux and the CNRS laboratory IMS. He has published 300 technical papers in microwave and RF circuit synthesis, and is a senior member of the IEEE.

Jacques Beneat received his PhD in electrical and computer engineering from Worcester Polytechnic Institute with a focus in advanced microwave structures for satellite communications, and a doctorate degree from the University of Bordeaux with Mention Très Honorable avec Félicitations du Jury. He was a research scientist at the Center for Wireless Information Network Studies at WPI and is currently Associate Professor of Electrical and Computer Engineering at Norwich University.

Pierre Jarry and Jacques Beneat are the authors of the bestselling book Advanced Design Techniques and Realizations of Microwave an RF Filters, published by Wiley-IEEE Press and available also in electronic form.

FEATURES

• Provides timely insight on fractal resonators for compact and low power microwave and RF filters

• Relies on electromagnetic simulations using a commercial simulator, which does not require the great analytical and programming skills needed to develop custom RF/microwave simulators, and is thus more accessible.

• Covers miniaturized filters in bilevel fashion: gives method for extracting coupling coefficients and external quality factor from simulations of the RF/microwave structure
• Provides the method for matching theoretical couplings to couplings of structure

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