Since the concept was first proposed at the end of the 20th Century, metamaterials have been the subject of much research and discussion throughout the wave community. More than 10 years later, the number of related published articles is increasing significantly. On the one hand, this success can be attributed to dreams of new physical objects which are the consequences of the singular properties of metamaterials. Among them, we can consider the examples of perfect lensing and invisibility cloaking. On other hand, metamaterials also provide new tools for the design of well-known wave functions such as antennas for electromagnetic waves.

The goal of this book is to propose an overview of the concept of metamaterials as a perspective on a new practical tool for wave study and engineering. This includes both the electromagnetic spectrum, from microwave to optics, and the field of acoustic waves.

Contents

1. Overview of Microwave and Optical Metamaterial Technologies, Didier Lippens.
3. Metamaterials for Non-Radiative Microwave Functions and Antennas, Divitha Seetharamdoo and Bruno Sauviac.
7. Metamaterials for Control of Surface Electromagnetic and Liquid Waves, Sébastien Guenneau, Mohamed Farhat, Muamer Kadic, Stefan Enoch and Romain Quidant.

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