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Nota di contenuto	METAMATERIALS; CONTENTS; Foreword; Preface; ACKNOWLEDGMENTS; 1 Why Periodic Structures Cannot Synthesize Negative Indices of Refraction; 1.1 Introduction; 1.1.1 Overview; 1.1.2 Background; 1.2 Current Assumptions Regarding Veselago's Medium; 1.2.1 Negative Index of Refraction; 1.2.2 Phase Advance when n(1) < 0; 1.2.3 Evanescent Waves Grow with Distance for n(1) < 0; 1.2.4 The Field and Phase Vectors Form a Left-Handed Triplet for n(1) < 0; 1.3 Fantastic Designs Could Be Realized if Veselago's Material Existed; 1.4 How Veselago's Medium Is Envisioned To Be Synthesized Using Periodic Structures 1.5 How Does a Periodic Structure Refract?1.5.1 Infinite Arrays; 1.5.2 What About Finite Arrays?; 1.6 On the Field Surrounding an Infinite Periodic Structure of Arbitrary Wire Elements Located in One or More Arrays; 1.6.1 Single Array of Elements with One Segment; 1.6.2 Single

Array of Elements with Two Segments; 1.6.3 Single Array of Elements with an Arbitrary Number of Segments; 1.6.4 On Grating Lobes and Backward-Traveling Waves; 1.6.5 Two Arrays of Elements with an Arbitrary Number of Segments; 1.6.6 Can Arrays of Wires Ever Change the Direction of the Incident Field?
1.7 On Increasing Evanescent Waves: A Fatal Misconception1.8 Preliminary Conclusion: Synthesizing Veselago's Medium by a Periodic Structure Is Not Feasible; 1.9 On Transmission-Line Dispersion: Backward-Traveling Waves; 1.9.1 Transmission Lines; 1.9.2 Periodic Structures; 1.10 Regarding Veselago's Conclusion: Are There Deficiencies?; 1.10.1 Background; 1.10.2 Veselago's Argument for a Negative Index of Refraction; 1.10.3 Veselago's Flat Lens: Is It Really Realistic?; 1.11 Conclusions; 1.12 Common Misconceptions; 1.12.1 Artificial Dielectrics: Do They Really Refract?
1.12.2 Real Dielectrics: How Do They Refract?1.12.3 On the E- and H-Fields; 1.12.4 On Concentric Split-Ring Resonators; 1.12.5 What Would Veselago Have Asked if . . .; 1.12.6 On "Magic" Structures; References; 2 On Cloaks and Reactive Radomes; 2.1 Cloaks; 2.1.1 Concept; 2.1.2 Prior Art; 2.1.3 Alternative Explanation; 2.1.4 Alternative Design; 2.1.5 What Can You Really Expect from a Cloak?; 2.2 Reactive Radomes; 2.2.1 Infinite Planar Array with and Without Reactive Radome; 2.2.2 Line Arrays and Single Elements; 2.3 Common Misconceptions; 2.3.1 Misinterpretation of Calculated Results
2.3.2 Ultimately: What Power Can You Expect from a Short Dipole Encapsulated in a Small Spherical Radome?2.4 Concluding Remarks; References; 3 Absorbers with Windows; 3.1 Introduction; 3.2 Statement of the Problem; 3.3 Concept; 3.4 Conceptual Designs; 3.5 Extension to Arbitrary Polarization; 3.6 The High-Frequency Band; 3.7 Complete Conceptual Rasorber Design; 3.8 Practical Designs; 3.9 Other Applications of Traps: Multiband Arrays; Reference; 4 On Designing Absorbers for an Oblique Angle of Incidence; 4.1 Lagarkov's and Classical Designs; 4.2 Salisbury Screen; 4.3 Scan Compensation
4.4 Frequency Compensation

Sommario/riassunto

A Convincing and Controversial Alternative Explanation of Metamaterials with a Negative Index of Refraction In a book that will generate both support and controversy, one of the world's foremost authorities on periodic structures addresses several of the current fashions in antenna design-most specifically, the popular subject of double negative metamaterials. Professor Munk provides a comprehensive theoretical electromagnetic investigation of the issues and concludes that many of the phenomena claimed by researchers may be impossible. While denying the existence of negative refractio