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Nota di contenuto	Cover -- Series Page -- Title Page -- Copyright Page -- Contents -- About the Author -- Foreword -- Preface -- About the Companion Website -- Chapter 1 Introduction to Metasurface-Driven Electronic Warfare -- 1.1 From Static Radios to a Metasurface-Driven EW -- 1.1.1 Early Days -- 1.1.2 The Modern Era -- 1.1.3 To the Future -- 1.2 Can We Actually Rely on Electromagnetic Waves? -- 1.3 The „(Super) Natural Powers of Metasurfaces -- 1.3.1 Metamaterials: A Proof of Concept -- 1.3.2 The Need for a Two-Dimensional Version -- 1.4 How Do Metasurfaces Fit EW? -- 1.5 Reconfigurability at the Tactical Level -- 1.6 Book Presentation and Organization -- 1.7 Final Remarks of the Chapter -- References -- Chapter 2 Electromagnetics: A Review on Pertinent Points -- 2.1 Introduction to Electromagnetics -- 2.1.1 Fundamental Concepts -- 2.1.2 Complex Representation -- 2.1.3 Traveling and Standing Waves -- 2.1.4 Reflection, Transmission, and the Concept of Impedance -- 2.1.5 Oblique Incidence and the Refraction of Waves

Understand the metasurface revolution in electronic warfare Electronic warfare (EW) ensures safe usage of the electromagnetic spectrum by one's own forces while denying it to adversaries. Modern warfare is an extraordinarily fluid and dynamic activity, with numerous involved systems reconfigurable at the front or back ends. Metasurfaces, however, are artificially engineered surfaces that promise to take this dynamism to unprecedented levels by making platforms (aircraft, vessels, etc.) and the environment itself reconfigurable - a revolution that even major EW authorities have yet to fully comprehend. Metasurface-driven Electronic Warfare outlines the parameters of this revolution and its transformative potential in the EW space. Beginning with a historical overview of EW dynamism, it then provides the electromagnetic basics to understand metasurfaces, their operation mechanisms, and capacity for shaping electromagnetic waves. A series of detailed studies of metasurface applications in EW makes this an indispensable guide to an increasingly dynamic battlefield. Readers will also find:

- * Clear cost-benefit analyses of metasurface substitutions in modern EW scenarios
- * Detailed discussion of metasurface applications including stealth, electronic support, electronic attack, electronic protection, their use in drone swarms, smart environments, and more
- * Simulations of EW scenarios with accompanying MATLAB codes and exercises

Metasurface-driven Electronic Warfare is ideal for EW analysts, specialists, and operators, as well as signals intelligence and electrical engineering researchers and students. Because it covers the essentials in both areas, the book is also appropriate to support graduate courses on metasurfaces or EW.
