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Electromagnetics lays the theoretical

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foundation for solving new and complex engineering problems involving electromagnetics.

Applied Electromagnetics and Electromagnetic Compatibility deals with Radio Frequency Interference (RFI), which is the reception of

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undesired radio signals originating from digital electronics and electronic equipment. With today's rapid development of radio communication, these undesired signals as well as signals due to natural phenomena such as lightning, sparking, and others are

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becoming increasingly important in the general area of Electro Magnetic Compatibility (EMC). EMC can be defined as the capability of some electronic equipment or system to be operated at desired levels of performance in a given electromagnetic



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environment without generating EM emissions unacceptable to other systems operating in the vicinity.

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This text seeks to illuminate, mainly for the electrical power engineers of the future, the topic of large scale solar flux gathering schemes, which arguably represent the major source of renewable power

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available. The aim of the content is to impart, from an electromagnetic perspective, a deep and sound understanding of the topic of solar flux collection, ranging from the characteristics of light to the properties of antennas. To do this

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five chapters are employed to provide a thorough grounding in relevant aspects of electromagnetism and electromagnetic waves including optics, electromagnetic radiation and reception, aperture antennas

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and array antennas and the quantum electrodynamics aspects of optical absorption, as it relates to photovoltaic techniques. The principles developed in these chapters are then used to underpin and elucidate the main chapters on

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photovoltaic collectors, concentrated solar power collectors, satellite based collection systems and optical nantennas. To establish the novel and transformative renewable technologies, which civilisation will



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soon require, in order to achieve sustainability quickly and effectively, the availability of professional engineers and scientists with a thorough and commanding grasp of the fundamental science is an

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applications or simplified applications Discusses the finite element, finite difference and method of moments in a dedicated chapter

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achieve compactness by using the slot radiator as the fundamental building block within a periodic array, rather than a phased array. It provides the basic electromagnetic tools required to design and analyse these novel antennas, with

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planar arrays. While the book discusses the historical evolution of compact array antennas, its main focus is on summarising the extensive body of literature on compact antennas. With regard to the now ubiquitous slot radiator, it

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seeks to demonstrate how, despite significant antenna size reductions that at times even seem to defy the laws of physics, desirable radiation pattern properties can be preserved. This is supported by an examination of recent advances in

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frequency selective surfaces and in metamaterials, which can, if

handled correctly, be used to

facilitate physics-defying designs.

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engineers, especially thanks to its overview of trends in compact planar arrays, yet will also be of interest to students and researchers, as it provides a focused introduction and insights into this highly relevant antenna

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refraction as well as related materials including superconductors. In addition, the text brings together electromagnetism and optics as the majority of texts discuss electromagnetism disconnected

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from optics. In contrast, in this book both are discussed. Seven labs have been developed to accompany the material of the book.

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