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Electromagnetic Wave Theory

KONG, JA

Note: This is not the actual book cover

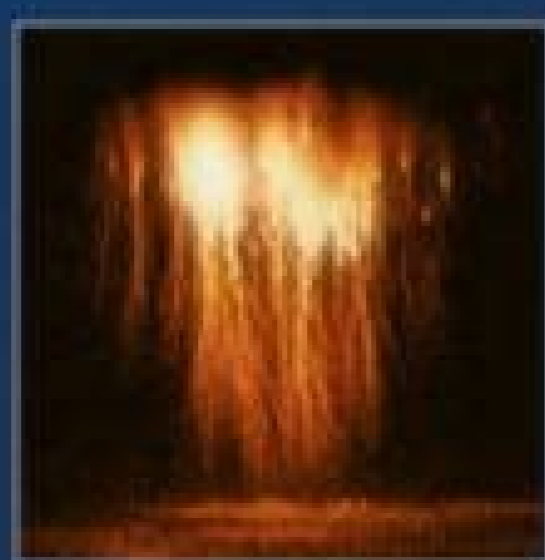
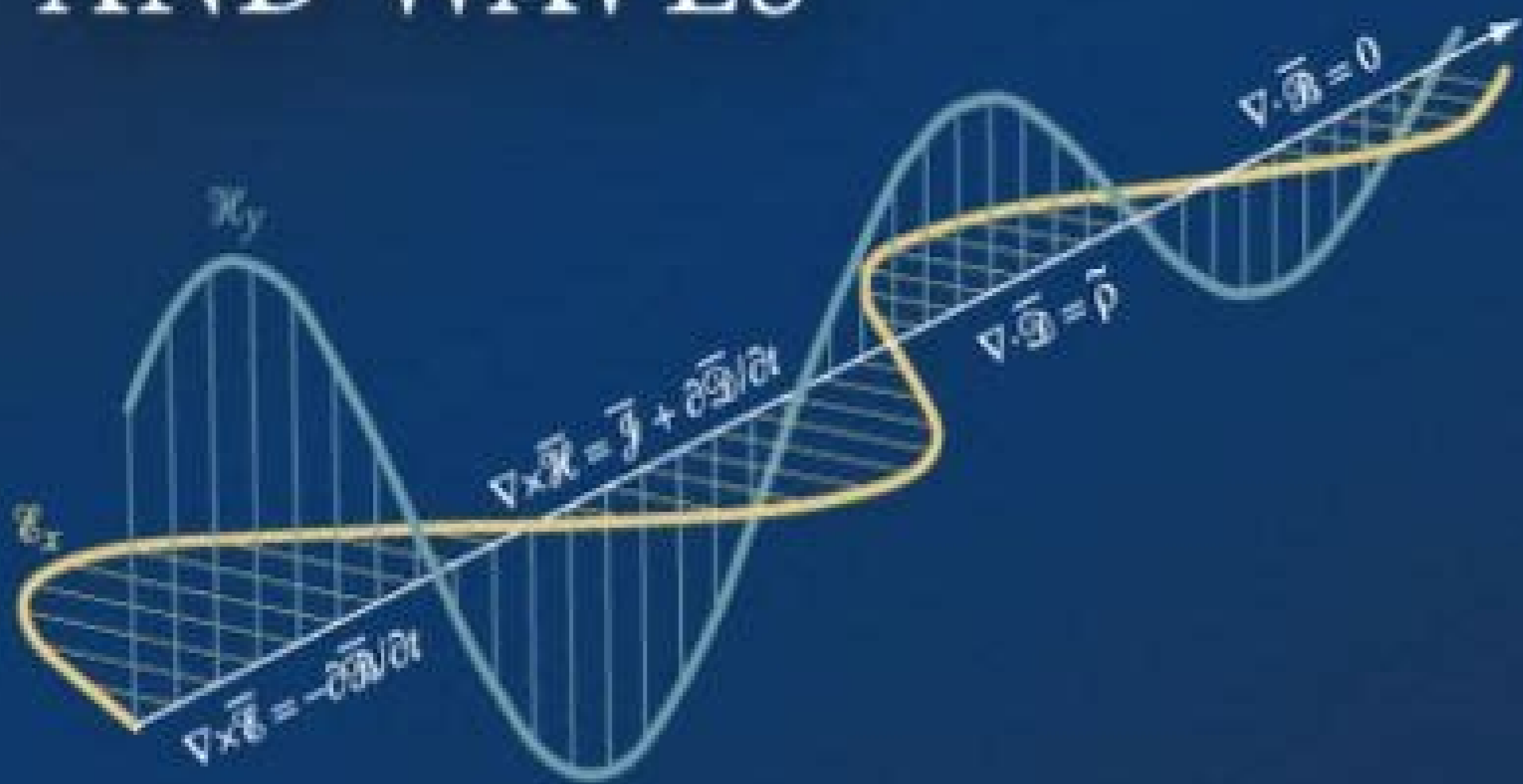
ELECTRO MAGNETIC SPECTRUM, ITS PRODUCTION, DETECTION AND USES IN GENERAL

Type	Wave length Range Frequency Range	Production	Detection	Uses
Radio	>0.1m 10^3 to 10^5 Hz	Rapid acceleration / deceleration of electrons in aerials	Receiver's aerials	Radio, TV Communication
Microwave	0.1mm 10^{11} to 10^9 Hz	Klystron valve or magnetron valve	Point contact diodes	Radar, TV communication
Infrared	1mm to 700nm 10^{13} to 10^{14} Hz	Vibration of atom or molecules	Thermopiles, Bolometer, Infrared Photographic Film	Green House effect, looking through haze, fog and mist, Ariel mapping.
Light	700nm to 400nm 8×10^{14} Hz	Electron in an atom during transition	Eye, Photocell, Photographic Film	Photography, Illuminations, Emit & reflect by the objects.
Ultraviolet	400nm to 1nm 5×10^{14} to 8×10^{14}	Inner Shell electron in atom moving from one energy level to a lower energy level	Photocell & photographic film	Preservation of food items, Detection of invisible writing, finger print in forensic laboratory. Determination of Structure of molecules & atoms.

Second Edition

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ENGINEERING ELECTROMAGNETICS AND WAVES



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Electromagnetic Waves

The atmosphere is full of electromagnetic waves. Electromagnetic waves are categorized according to frequency ranges. For example, common radio waves used for communications start at 0.5 MHz for AM radio and span to 22 GHz for satellite communications. The frequency of an electromagnetic wave is based on the repeating pattern of its waveform just as it is with electrical energy. One complete waveform is called a cycle. Figure 4.1, and frequency is the number of times a cycle occurs in one second.

Electromagnetic waves are produced both intentionally and unintentionally as a by-product of electrical energy. Radio and television stations produce electromagnetic waves intentionally while many household appliances produce electromagnetic waves unintentionally. You should recall from Chapter 2, Network Media—Copper Core Cable that unintentional electromagnetic waves are referred to as interference, or more specifically, noise.

Radio and Microwave Transmission

Radio and microwave transmission works on the principle of producing a carrier wave as the means of communication between two wireless devices. A carrier wave is an electromagnetic wave of a set frequency that is used to carry data. It is identified by a frequency number. For example, radio and television stations are assigned specific frequencies on which they must transmit. A radio identification such as 94.3 FM represents a carrier wave of 94.3 MHz. The carrier wave is how individual stations are identified on radio or television. Figure 4.2.

The carrier wave is mixed with the data signal. The mixing of the carrier wave and data signal is known as modulation. The technique of modulation is how AM radio, FM radio, and television operate. A simple radio broadcast

carrier wave
modulation
data signal

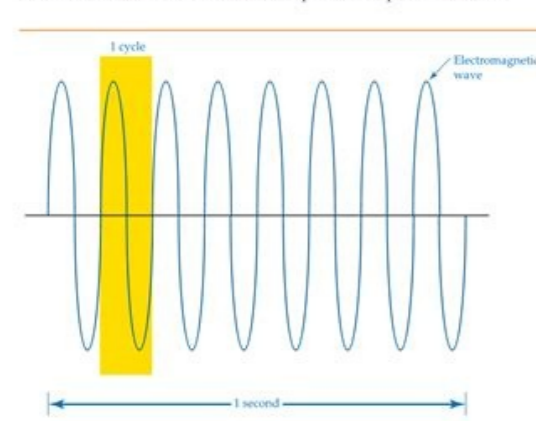
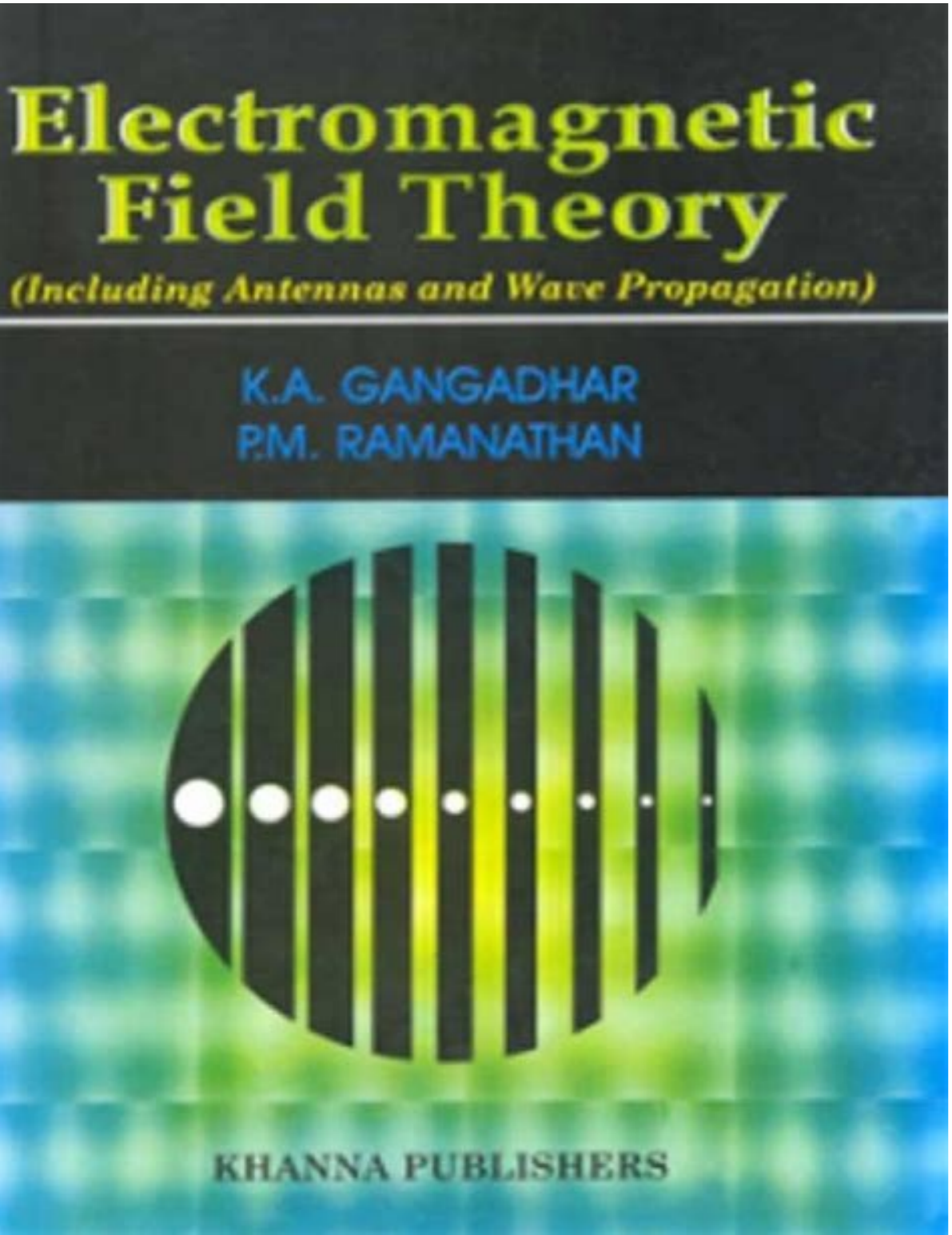


Figure 4.1. Electromagnetic frequency is based on the repeating pattern of a waveform. One complete waveform is called a cycle. The frequency is how many cycles occur in one second.



Electromagnetic wave theory jin au kong. Electromagnetic wave theory timeline. Theory of electromagnetic waves.

The chapter 2 is dedicated to the treatment of the theory of the line of transmission. Call tailored. Since 1998, has been published by EMW Editora, Massachusetts. The list of books and daily articles in the reference section at the end of the book is in the best representative and in no means exhaustive. Starting with Cerenkov's radiation, we studied the radiation theory and antenna in chapter 5. Great importance is placed on the key vector importance in the theory of electromagnetic waves. Some of the results contained in the book are taken from many of my research projects, which were supported by subsidiaries and contracts of the National Science Foundation, the National Administration of Aeronautics and Space, Naval Research Office, The Research Office of Exchange, the Jet Laboratory of the California Institute of Technology, the Laboratory MIT Lincoln, the Schlumberger-Doll Research Center, Digital Equipment Corporation, IBM Corporation and associated financial support At S. the first version of the book was published in 1975 by Wiley Interscience, New York, titled theory of electromagnetic waves, based on my Ph.D. thesis, where the concept of Bianisotropy media was introduced. A. The development of the various concepts in the book depends a lot on the published work. This is similar to the fundamental unit for the Hz temporal frequency, which is cycle per second in the variation of time. J. Li Primio for the year 2000. I would like to express my gratitude to them and for the students whose response and feedback enthusiastic continually give me joy and satisfaction in teaching. Cloth on boards. Audience: General / RCIO. During the writing and preparation of the book, many people helped. T. The problem in the end of each section provides exercises and itosis applications. Condition: Very good. Spheres, cylinders, ovarian surfaces and volume inhomogeneities In chapter 8, we present Maxwell's theory from the point of view of Lorentz cowardice according to the principle of special relativity. We introduce a fundamental unit $K_0 = 2AA \text{ meter } \text{Å}$. A1 Chapter 4 presents a detailed treatment of the reflex, transmission, orientation and resonance of electromagnetic waves. Kong Cambridge, Massachusetts December 2007 Download the Contents of EM Wave Theory Back to Kong's Books Seller Inventory # Alibris.0014485 More μ about this seller | Contact this seller Books by Jin Au KongOnce you don't make a promise, you shouldn't keep it. This is a textbook on the theory of electromagnetic waves, and essential for understanding electromagnetic waves are selected and presented. The page you are not looking for cannot be found. Contact Support A Library or the Ex Libris HUB for additional μ . Reference to incident ID: N/A Wave Electromagn@tica T... This book has been used in a number of undergraduate and graduate courses that I have been teaching at the Massachusetts Institute of Technology. 2nd ed. Chapter 1 presents the fundamental laws and μ equations for electromagnetic theory. Å by Jin Au Kong Prof. of Electromagnetic Wave Theory, Ath Edition in 2008 by J. In particular, I would like to recognize Chi On Ao to formulate the TEX macros, and Zhen Wu to edit the text and build the index. The unit $K_0 A^{\circ}$ directly proportional to Hz unit; a K_0 in spatial frequency corresponds to 300 MHz in temporal frequency. I have not tried to refer to all relevant μ . by J.A. Kong Stock Image Kong, Jin Au Published by John Wiley & Sons, New York, NY (1990) ISBN 10: 0471522147 ISBN 13: 9780471522140 Hard cover quantity used: 1 Saleperson: Lost books (AUSTIN, TX, Sort assessment of the seller: description of the hardcover book. 704 p. Kong Kong It presents a unified macroscopic theory of electromagnetic waves according to the principle of special relativity from the point of view of the invariance of the form of the equations of Maxwell and the constitutive relationships. The chapter 6 then elaborates the various theorems and limiting cases of Maxwell's important theory for the study of electromagnetic wave behavior. Topics in the book can be taught independently, and the material is organized in the order of growing complexity in mathematical and conceptual abstraction and sophistication. Electromagnetic media waves are studied in chapter 3 with the KDB system developed to study waves in anisotropic and bianisotropy. Over the years, many of my teaching and research assistants provided itosis and reviewer suggestions, notably Leung Tsang, Michael Zuniga, Weng Chew, Habashy Tarek, Robert Shin, Shun-Lien Chuang, Jay Kyoan Lee, Apo Sezginer, Eric Yang, Michael Tsuk, Hsiu Chi Han, Yan Zhang, Henning Braunsch, Bao-Ian Wu, Xudong Chen and Baile Zhang. The book was expanded and published in 1986 with the current title and its second edition appeared in 1990. 1990.

Sep 21, 2021 - What is a Concave Mirror? A concave mirror is a spherical mirror with a dented inward reflecting surface. Incoming light beams are reflected and focused (parallel) to a point called the focus point using concave mirrors. Various types of pictures are generated depending on the distance between an object and the reflecting surface.

Mar 05, 2022 · MHT CET Syllabus 2022 is released by State Common Entrance Test (CET) Cell, Maharashtra . MHT CET Syllabus 2022 includes the list of topics from which MHT CET question paper will be framed.MHT CET syllabus is based on the curriculum of classes 11 and 12 of Maharashtra State Board of Secondary and Higher Secondary Education. Check An electromagnetic metamaterial affects electromagnetic waves that impinge on or interact with its structural features, which are smaller than the wavelength. To behave as a homogeneous material accurately described by an effective refractive index, its features must be much smaller than the wavelength. [citation needed]For microwave radiation, the features are on the order of ... Revision Notes on Atoms and Molecules The invisible and unknown form of matter The idea of divisibility by Indian philosophers . Maharishi Kanad - He postulated that if we keep on dividing the matter (called as 'padarth') we will get smaller and smaller particles.And soon we will achieve the smallest of particles (called as 'parmanu') which may not divide further.

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