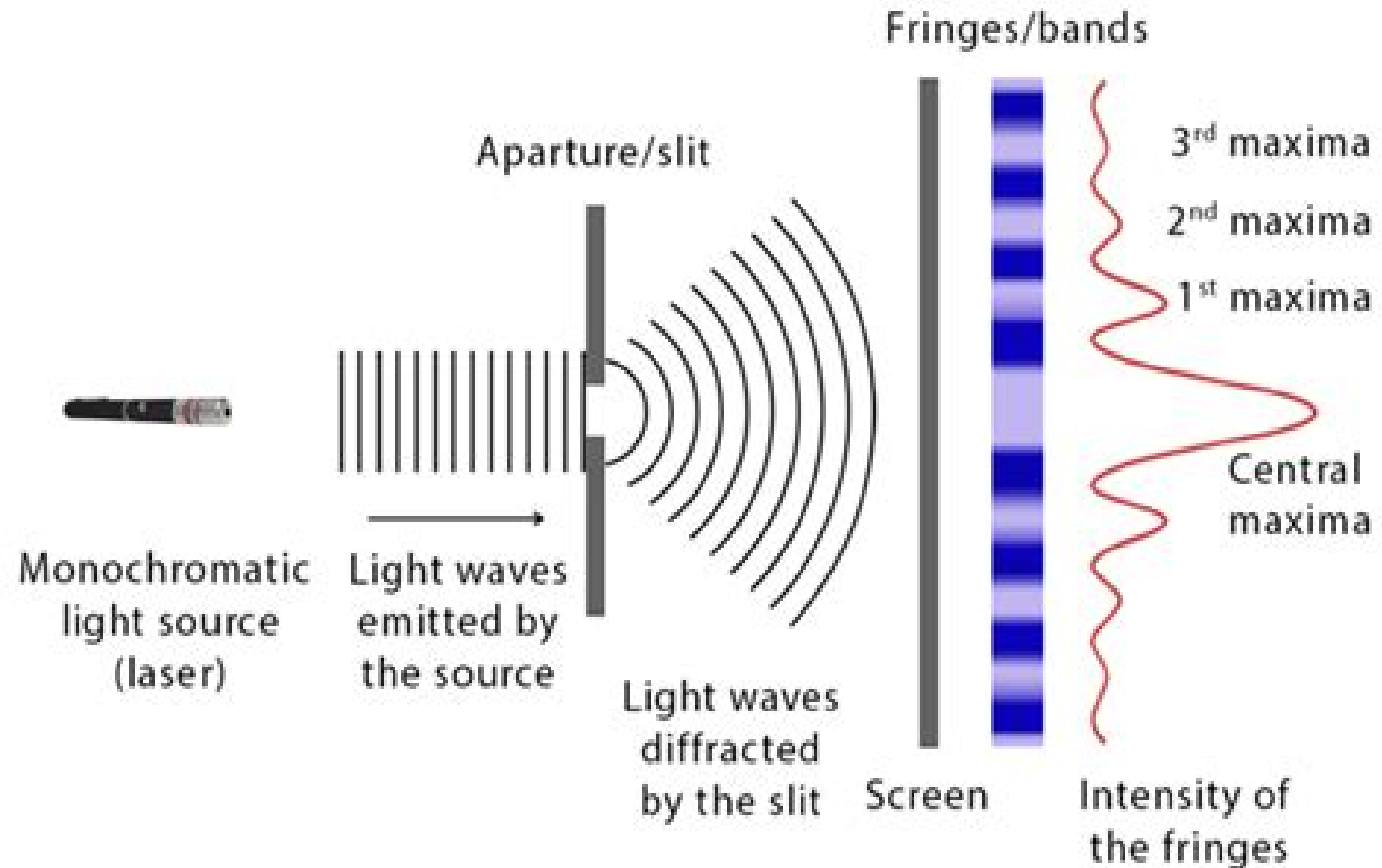


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Mathematical Theory Of Diffraction

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Mathematical Theory of Diffraction Arnold Sommerfeld, 2004 A Sommerfeld's Mathematische Theorie der Diffraction marks a milestone in optical theory full of insights that are still relevant today This complete translation reflecting substantial scholarship is the first publication in English of Sommerfeld's original work

The Mathematical Theory of Huygens' Principle Bevan B. Baker, E. T. Copson, 2003 Baker and Copson originally set themselves the task of writing a definitive text on partial differential equations in mathematical physics However at the time the subject was changing rapidly and greatly particularly via the developments coming from quantum mechanics Instead the authors chose to focus on a particular area of the broad theory producing a monograph complete in itself The resulting book deals with Huygens principle in optics and its application to the theory of diffraction Baker and Copson concern themselves with the general theory of the solution of the PDEs governing the propagation of light Extensive use is made of Green's method A chapter is dedicated to Sommerfeld's theory of diffraction including diffraction of polarized light by a perfectly reflecting half plane and by a black half plane New material was added for subsequent editions notably Rayleigh's method of integral equations to the problem of diffraction by a planar screen Some of the simpler diffraction problems are discussed as examples Baker and Copson's book quickly became the standard reference on the subject of Huygens principle It remains so today

Mathematical Theory of X-ray Powder Diffractometry Arthur James Cochran Wilson, 1963

Equations of Mathematical Diffraction Theory Mezhlum A. Sumbatyan, Antonio Scalia, 2004-09-29 Equations of Mathematical Diffraction Theory focuses on the comparative analysis and development of efficient analytical methods for solving equations of mathematical diffraction theory Following an overview of some general properties of integral and differential operators in the context of the linear theory of diffraction processes the authors provide estimates of the operator norms for various ranges of the wave number variation and then examine the spectral properties of these operators They also present a new analytical method for constructing asymptotic solutions of boundary integral equations in mathematical diffraction theory for the high frequency case Clearly demonstrating the close connection between heuristic and rigorous methods in mathematical diffraction theory this valuable book provides you with the differential and integral equations that can easily be used in practical applications

Advanced Studies in the Mathematical Theory of Scattering, Volume 3 Jean-Michel L. Bernard, 2024-11-13 This book presents a collection of independent mathematical studies describing the analytical reduction of complex generic problems in the theory of scattering and propagation of electromagnetic waves in the presence of imperfectly conducting objects Their subjects include a global method for scattering by a multimode plane diffraction by an impedance curved wedge scattering by impedance polygons advanced properties of spectral functions in frequency and time domains bianisotropic media and related coupling expressions and exact and asymptotic reductions of surface radiation integrals The methods developed here can be qualified as analytical when they lead to exact explicit expressions or semi analytical when they drastically reduce the mathematical

complexity of studied problems Therefore they can be used in mathematical physics and engineering to analyse and model but also in applied mathematics to calculate the scattered fields in electromagnetism for a low computational cost

Equations of Mathematical Diffraction Theory Mezhlum A. Sumbatyan, 2005 **Water Waves: The Mathematical Theory with Applications** James Johnston Stoker, 2019-04-17 First published in 1957 this is a classic monograph in the area of applied mathematics It offers a connected account of the mathematical theory of wave motion in a liquid with a free surface and subjected to gravitational and other forces together with applications to a wide variety of concrete physical problems A never surpassed text it remains of permanent value to a wide range of scientists and engineers concerned with problems in fluid mechanics The four part treatment begins with a presentation of the derivation of the basic hydrodynamic theory for non viscous incompressible fluids and a description of the two principal approximate theories that form the basis for the rest of the book The second section centers on the approximate theory that results from small amplitude wave motions A consideration of problems involving waves in shallow water follows and the text concludes with a selection of problems solved in terms of the exact theory Despite the diversity of its topics this text offers a unified readable and largely self contained treatment *Fundamental Problems in the Mathematical Theory of Diffraction* V. D. Kupradze, 1952 **A Treatise on the Mathematical Theory of Elasticity** Augustus Edward Hough Love, 1892 An indispensable reference work for engineers mathematicians and physicists this book is the most complete and authoritative treatment of classical elasticity in a single volume Beginning with elementary notions of extension simple shear and homogeneous strain the analysis rapidly undertakes a development of types of strain displacements corresponding to a given strain cubical dilatation composition of strains and a general theory of strains A detailed analysis of stress including the stress quadric and uniformly varying stress leads into an exposition of the elasticity of solid bodies Based upon the work energy concept experimental results are examined and the significance of elastic constants in general theory considered Hooke s Law elastic constants methods of determining stress thermo elastic equations and other topics are carefully discussed Back cover **Theory of Seismic Diffractions** Kamill Davydovich Klem-Musatov, 1994 Presents a complete mathematical description of diffractions caused by seismic velocity discontinuities Diffraction theory provides important physical insights into seismology and is a necessary part of describing the nature of a seismogram The author describes elastic wave theory and relates it to the high frequency approximations of ray theory

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