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 The Theory of the Riemann Zeta-function
 The Riemann Hypothesis
 The Riemann Hypothesis and the Distribution of Prime Numbers
 Riemann Zeta Function Computed As $Z(0.5 + yi + zi)$: 3D Riemann Hypothesis
 Dr. Riemann's Zeroes
 The Riemann Hypothesis and the Roots of the Riemann Zeta Function
 Prime Numbers and the Riemann Hypothesis
 Series Associated with the Zeta and Related Functions
 The Zeta-function of Riemann
 Riemann's Zeta Function
 Tables of the Riemann Zeta Function
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 The Zeta Function Of Riemann
 Automorphic Forms on $GL(2)$
 The Lerch zeta-function
 Zeta Functions of Groups and Rings
 On the Asymptotics to all Orders of the Riemann Zeta Function and of a Two-Parameter Generalization of the Riemann Zeta Function
 History of Zeta Functions
 Lectures on the Mean-Value and Omega Theorems for the Riemann Zeta-Function
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 Series Associated with the Zeta and Related Functions
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 The Riemann Zeta-function
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The Theory of the Riemann Zeta-function Riemann hypothesis

A comprehensive account of Hardy's Z-function, one of the most important functions of analytic number theory.

Exploring the Riemann Zeta Function Springer

Riemann's zeta function

The Theory of the Riemann Zeta-function Hassell Street Press

This is the first book on the theory of multiple zeta values since its birth around 1994. Readers will find that the shuffle products of multiple zeta values are applied to complicated counting problems in combinatorics, and numerous interesting identities are produced that are ready to be used. This will provide a powerful tool to deal with problems in multiple zeta values, both in evaluations and shuffle relations. The volume will benefit graduate students doing research in number theory.

The Riemann Hypothesis Cambridge University Press

The aim of the series is to present new and important developments in pure and applied mathematics. Well established in the community over two decades, it offers a large library of mathematics including several important classics. The volumes supply thorough and detailed expositions of the methods and ideas essential to the topics in question. In addition, they convey their relationships to other parts of mathematics. The series is addressed to advanced readers wishing to thoroughly study the topic. Editorial Board Lev Birbrair, Universidade Federal do Ceará, Fortaleza, Brasil Victor P. Maslov, Russian Academy of Sciences, Moscow, Russia Walter D.

Neumann, Columbia University, New York, USA Markus J. Pflaum, University of Colorado, Boulder, USA Dierk Schleicher, Jacobs University, Bremen, Germany

The Riemann Hypothesis and the Distribution of Prime Numbers Oxford University Press

Superb high-level study of one of the most influential classics in mathematics examines landmark 1859 publication entitled "On the Number of Primes Less Than a Given Magnitude," and traces developments in theory inspired by it. Topics include Riemann's main formula, the prime number theorem, the Riemann-Siegel formula, large-scale computations, Fourier analysis, and other related topics. English translation of Riemann's original document appears in the Appendix.

Riemann Zeta Function Computed As $Z(0.5 + yi + zi)$: 3D Riemann Hypothesis American Mathematical Soc.

The Riemann zeta function was introduced by L. Euler (1737) in connection with questions about the distribution of prime numbers. Later, B. Riemann (1859) derived deeper results about the prime numbers by considering the zeta function in the complex variable. The famous Riemann Hypothesis, asserting that all of the non-trivial zeros of zeta are on a critical line in the complex plane, is one of the most important unsolved problems in modern mathematics. The present book consists of two parts. The first part covers classical material about the zeros of the Riemann zeta function with applications to the distribution of prime numbers, including those made by Riemann himself, F. Carlson, and Hardy-Littlewood. The second part gives a complete presentation of Levinson's method for zeros on the critical line, which allows one to prove, in particular, that more than one-third of non-trivial zeros of zeta are on the critical line. This approach and some results concerning integrals of Dirichlet polynomials are new. There are also technical lemmas which can be useful in a broader context.

Dr. Riemann's Zeroes Courier Corporation

Since its inception by Bernard Riemann in 1859, every pure mathematician has longed for a proof for the Riemann hypothesis. Riemann's hypothesis seeks to explain where every single prime number to infinity will occur. This is the story of the quest for the solution.

The Riemann Hypothesis and the Roots of the Riemann Zeta Function Springer

Zeta functions have been a powerful tool in mathematics over the last two centuries. This book considers a new class of non-commutative zeta functions which encode the structure of the subgroup lattice in infinite groups. The book explores the analytic behaviour of these functions together with an investigation of functional equations. Many important examples of zeta functions are calculated and recorded providing an important data base of explicit examples and methods for calculation.

Prime Numbers and the Riemann Hypothesis American Mathematical Society

The Riemann zeta-function is our most important tool in the study of prime numbers, and yet the famous "Riemann hypothesis" at its core remains unsolved. This book studies the theory from every angle and includes new material on recent work.

Series Associated with the Zeta and Related Functions Walter de Gruyter

In recent years there has been an increasing interest in problems involving closed form evaluations of (and representations of the Riemann Zeta function at positive integer arguments as) various families of series associated with the Riemann Zeta function ($\zeta(s)$, the Hurwitz Zeta function ($\zeta(s, a)$, and their such extensions and generalizations as (for example) Lerch's transcendent (or the Hurwitz-Lerch Zeta function) $\text{Li}_s(z, s, a)$). Some of these developments have apparently stemmed from an over two-century-old theorem of Christian Goldbach (1690-1764), which was stated in a letter dated 1729 from Goldbach to Daniel Bernoulli (1700-1782), from recent rediscoveries of a fairly rapidly convergent series representation for $\zeta(3)$, which is actually contained in a 1772 paper by Leonhard Euler (1707-1783), and from another known series representation for $\zeta(3)$, which was used by Roger Apéry (1916-1994) in 1978 in his celebrated proof of the irrationality of $\zeta(3)$. This book is motivated essentially by the fact that the theories and applications of the various methods and techniques used in dealing with many different families of series associated with the Riemann Zeta function and its aforementioned relatives are to be found so far only in widely scattered journal articles. Thus our systematic (and unified) presentation of these results on the evaluation and representation of the Zeta and related functions is expected to fill a conspicuous gap in the existing books dealing exclusively with these Zeta functions.

The Zeta-function of Riemann Courier Corporation

This monograph is a generalization of the classic Riemann, and Hurwitz zeta-functions, containing both analytic and probability theory of Lerch zeta-functions.

Riemann's Zeta Function American Mathematical Society

This is the first introductory book on multiple zeta functions and multiple polylogarithms which are the generalizations of the Riemann zeta function and the classical polylogarithms, respectively, to the multiple variable setting. It contains all the basic concepts and the important properties of these functions and their special values. This book is aimed at graduate students, mathematicians and physicists who are interested in this current active area of research. The book will provide a detailed and comprehensive introduction to these objects, their fascinating properties and interesting relations to other mathematical subjects, and various generalizations such as their q-analogs and their finite versions (by taking partial sums modulo suitable prime powers). Historical notes and exercises are provided at the end of each chapter.

Tables of the Riemann Zeta Function Springer

This book introduces prime numbers and explains the famous unsolved Riemann hypothesis.

The Riemann Hypothesis and the Roots of the Riemann Zeta Function Cambridge University Press
 The Riemann Hypothesis has become the Holy Grail of mathematics in the century and a half since 1859 when Bernhard Riemann, one of the extraordinary mathematical talents of the 19th century, originally posed the problem. While the problem is notoriously difficult, and complicated even to state carefully, it can be loosely formulated as "the number of integers with an even number of

prime factors is the same as the number of integers with an odd number of prime factors." The Hypothesis makes a very precise connection between two seemingly unrelated mathematical objects, namely prime numbers and the zeros of analytic functions. If solved, it would give us profound insight into number theory and, in particular, the nature of prime numbers. This book is an introduction to the theory surrounding the Riemann Hypothesis. Part I serves as a compendium of known results and as a primer for the material presented in the 20 original papers contained in Part II. The original papers place the material into historical context and illustrate the motivations for research on and around the Riemann Hypothesis. Several of these papers focus on computation of the zeta function, while others give proofs of the Prime Number Theorem, since the Prime Number Theorem is so closely connected to the Riemann Hypothesis. The text is suitable for a graduate course or seminar or simply as a reference for anyone interested in this extraordinary conjecture.

The Zeta Function Of Riemann Springer Science & Business Media

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Automorphic Forms on GL(2) Springer Science & Business Media

In this book, I investigate (on a undergraduate level) the implication of 3D nontrivial zero solutions and its connection to the Montgomery Pair correlation conjecture. If there exist a 3D landscape to the nontrivial zeros (3D Riemann Hypothesis) then correspondingly there exist a 3D eigenvalue landscape. The arrangement of these 3D hypercomplex eigenvalue equivalent to 3D hypercomplex nontrivial zero solutions. What makes this so interesting is that this 3D eigenvalue landscape may be describing a new undiscovered 3D hypercomplex Quantum Mechanical landscape. I also explore other new discoveries on L-functions and the Prime Number Theorem.

The Lerch zeta-function Springer Science & Business Media

In recent years there has been an increasing interest in problems involving closed form evaluations of (and representations of the Riemann Zeta function at positive integer arguments as) various families of series associated with the Riemann Zeta function ((s), the Hurwitz Zeta function ((s,a), and their such extensions and generalizations as (for example) Lerch's transcendent (or the Hurwitz-

Lerch Zeta function) $l(z, s, a)$). Some of these developments have apparently stemmed from an over two-century-old theorem of Christian Goldbach (1690-1764), which was stated in a letter dated 1729 from Goldbach to Daniel Bernoulli (1700-1782), from recent rediscoveries of a fairly rapidly convergent series representation for $\zeta(3)$, which is actually contained in a 1772 paper by Leonhard Euler (1707-1783), and from another known series representation for $\zeta(3)$, which was used by Roger Apéry (1916-1994) in 1978 in his celebrated proof of the irrationality of $\zeta(3)$. This book is motivated essentially by the fact that the theories and applications of the various methods and techniques used in dealing with many different families of series associated with the Riemann Zeta function and its aforementioned relatives are to be found so far only in widely scattered journal articles. Thus our systematic (and unified) presentation of these results on the evaluation and representation of the Zeta and related functions is expected to fill a conspicuous gap in the existing books dealing exclusively with these Zeta functions.

Zeta Functions of Groups and Rings Nova Science Publishers

The author demonstrates that the Dirichlet series representation of the Riemann zeta function converges geometrically at the roots in the critical strip. The Dirichlet series parts of the Riemann zeta function diverge everywhere in the critical strip. It has therefore been assumed for at least 150 years that the Dirichlet series representation of the zeta function is useless for characterization of the non-trivial roots. The author shows that this assumption is completely wrong. Reduced, or simplified, asymptotic expansions for the terms of the zeta function series parts are equated algebraically with reduced asymptotic expansions for the terms of the zeta function series parts with reflected argument, constraining the real parts of the roots of both functions to the critical line. Hence, the Riemann hypothesis is correct. Formulae are derived and solved numerically, yielding highly accurate values of the imaginary parts of the roots of the zeta function.

On the Asymptotics to all Orders of the Riemann Zeta Function and of a Two-Parameter Generalization of the Riemann Zeta Function Springer

This text covers exponential integrals and sums, 4th power moment, zero-free region, mean value estimates over short intervals, higher power moments, omega results, zeros on the critical line, zero-density estimates, and more. 1985 edition.

History of Zeta Functions Springer Science & Business Media

This book is an introductory and comprehensive presentation of the Riemann Hypothesis, one of the most important open questions in math today. It is introductory because it is written in an accessible and detailed format that makes it easy to read and understand. And it is comprehensive because it explains and proves all the mathematical ideas surrounding and leading to the formulation of the hypothesis.