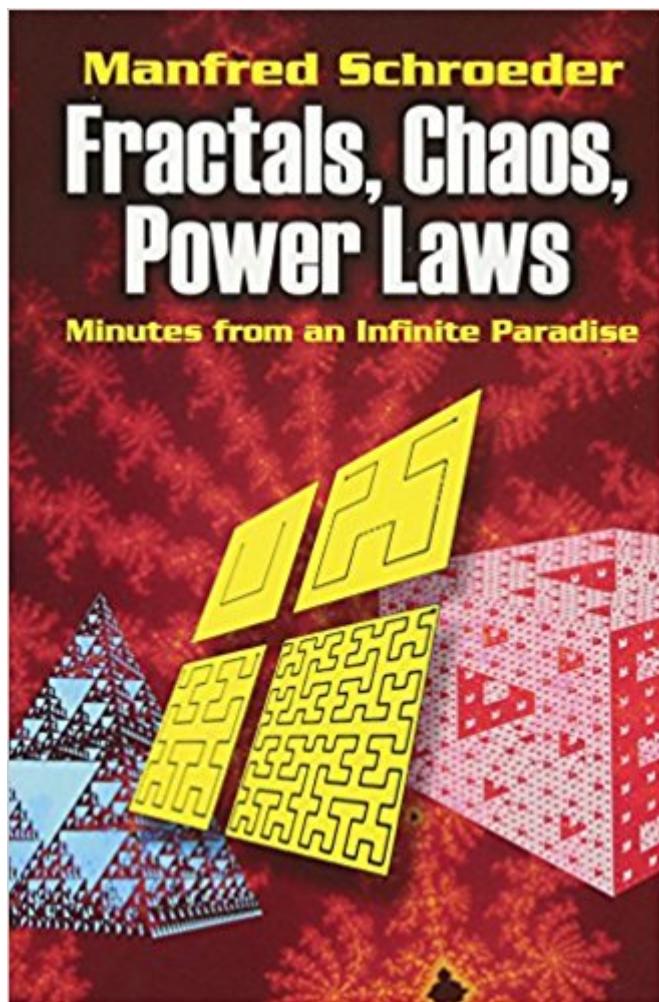


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# Fractals, Chaos, Power Laws: Minutes From An Infinite Paradise (Dover Books On Physics)



## Synopsis

"As notable as the book's broad sweep is the author's good-natured, humorous presentation. The willing reader can sit back and enjoy an all-encompassing, irrepressibly enthusiastic tour, ranging from psycho physics to quasicrystals, from gambling strategies to Bach concertos, from the construction of Cantor sets to the design of concert halls." *Physics Today* "Such a richness of topics and amazing splendor of illustrations!" *Mathematics Magazine* "An inviting exposition for a literate but not highly scientific audience." *American Mathematical Monthly* This fascinating book explores the connections between chaos theory, physics, biology, and mathematics. Its award-winning computer graphics, optical illusions, and games illustrate the concept of self-similarity, a typical property of fractals. Author Manfred Schroeder is hailed by Publishers Weekly as a modern Lewis Carroll • conveys memorable insights in the form of puns and puzzles that relate abstract mathematics to everyday experience. Excellent entertainment for readers with a grasp of algebra and some calculus, this book forms a fine university-level introduction to fractal math. Eight pages of color images clarify the text, along with numerous black-and-white illustrations.

## Book Information

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## Customer Reviews

Readers of James Gleick's 1989 bestseller, *Chaos, The Making of a New Science*, will find the revolution predicted there in full swing in this advanced look at "self-similarity, " one of chaos theory's most appealing applications. Self-similarity in computer graphics yields the awesome fractal

mountain patterns that have made chaos a visible theory for many nonmathematicians. Readers with good command of calculus and some physics will appreciate how far chaos theory has penetrated theoretical physics, biology and the practice of research as described in puns, illustrations and puzzles by this 20th-century Lewis Carroll. Without those skills, however, readers may stand like Alice before a small door that opens on strange new wonders of the physical world, the extended horizons of number theory and advanced math recreation. Schroeder is a professor of physics at Goettingen University in Germany. Copyright 1991 Reed Business Information, Inc.

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A pioneer in the artistic potential of computer graphics, Manfred Schroeder is a world-renowned expert in acoustics. He served as a distinguished member of the research staff of AT & T Bell Laboratories for 33 years and is Professor Emeritus at the University of Goettigen, Germany. **Manfred Schroeder: Making Order Out of Chaos** Manfred Schroeder (1926–2009) was a German physicist who divided his professional time between Bell Labs and The University of Gottingen. He was a world-renowned authority on acoustics and held numerous patents in many fields. *Fractals, Chaos, Power Laws: Minutes from an Infinite Paradise*, reprinted by Dover in 2009, is a feast for the reader with a grasp of algebra and some calculus. He or she will find much to enjoy and think about between the covers of this unique book. Critical Acclaim for *Fractals, Chaos, Power Laws*: "Readers of James Gleick's 1989 bestseller, *Chaos, The Making of a New Science*, will find the revolution predicted there in full swing in this advanced look at 'self-similarity,' one of chaos theory's most appealing applications. Self-similarity in computer graphics yields the awesome fractal mountain patterns that have made chaos a visible theory for many nonmathematicians. Readers with good command of calculus and some physics will appreciate how far chaos theory has penetrated theoretical physics, biology and the practice of research as described in puns, illustrations and puzzles by this 20th-century Lewis Carroll. Without those skills, however, readers may stand like Alice before a small door that opens on strange new wonders of the physical world, the extended horizons of number theory and advanced math recreation." • Publisher's Weekly "As notable as the book's broad sweep is the author's good-natured, humorous presentation. The willing reader can sit back and enjoy an all-encompassing, irrepressibly enthusiastic tour, ranging from psycho-physics to quasicrystals, from gambling strategies to Bach concertos, from the construction of Cantor Sets to the design of concert halls" • Physics Today "Such a richness of topics and amazing splendor of illustrations." • Mathematics Magazine

The Change of State from order to disorder is here-in presented. Excellent read to introduce, then induce you to pursue this emerging understanding of the Reality in which we live. But remember this while reading, CHAOS does not mean indeterminate, or without order: It is more about simultaneous states and the demonstration of their occurrence.

It is a perfect book for people that want to decide that they want to be a History major or if they want to know if History will be the major for them. It is full of great tips and its attempts to monetize the History degrees. It also teaches you how to write history research papers.

What a head-trip! While the Pearly Gates of Paradise may be more than a few minutes away, you are almost certain to enjoy the journey with this book in hand. I purchased this book from back in 2002 and apart from the curling cellophane-coated front cover, I have nothing but praise for it. It simply gets better, every single time I read it - not unlike sipping some fine vintage even as it ages. It must be difficult to write a book on a subject so intrinsically mathematical while retaining a healthy, comprehensible tone with a twist of the ridiculous. Schroeder has an enviable sense of comic timing in addition to his peculiarly personalized insight into the world of Number Theory. It is pretty amazing, considering the broad and variable scope of his exposition that the entire opus did not descend into an inexorable chaotic mess of formulae. He skillfully manages to avoid the quagmire of complexity by properly abbreviating lengthy explanations with diagrams, pretty color prints and even the occasional cartoon aside. This leaves him enough time for the most engaging (not to mention informative) anecdotes which allows him to bring the reader into certain obscure fields of research - bilingual poetry, cheating at roulette and on how to kill Germans with Gift(s) - so to speak. Do not be fooled by the casual tone of the book because this is anything but a cursory tour. In fact, if this is your first encounter with Chaos and Fractals, it may be better to have more than one supplementary text at hand. (I suggest Peitgen, Jurgens and Saupe's Å Chaos and Fractals: New Frontiers of Science.) Schroeder's book is written for serious students, who want to see some practical (and sometimes not-so-practical) applications of what were once mere mathematical monstrosities. Neither Weierstrass nor Cantor could have predicted that their little monsters would turn out to dominate the physical world. This book gives you an insightful look at how far non-differentiable functions have come since those early pioneering days. Go ahead and buy this book. It is what every scientific book should aspire to be - brilliant and funny (exactly in that order!)

This book can be read in two different ways: The first one is intended for the uninitiated who wants to get an introduction to chaos and fractals; the way Schroeder guides you into the chaotic phenomena that occur everywhere around us is clear, elegant and funny. He plays with chaos and makes the reader part of this game. The second way to read this book includes a warning for scholars: This is not a textbook! The mathematical background used to explain this game is strong. Schroeder lets the committed reader to work with the maths by himself, so you must have paper, pencil, and computer near to you in order to enjoy the book's whole potential, in this case Schroeder has all the experience and knowledge on the matter to guide you through "this infinite paradise" in a very firm way. The only thing I'd wish from this book was a new hardcover edition, I've read it so many times that my copy is getting very spoiled. If you are still interested after reading this book, but you want a little help with your maths then I'd recommend "Chaos Theory Tamed" by Garnett P. Williams. It will do the trick. However if you just want to fall in love with chaos without complications, then you should read "Chaos: The Making of a New Science" by James Gleick.

Excellent book!

A good read. Challenging and absorbing to think from different angles and perspectives.

excellent

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