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Contents

Indexed in *Current Contents*
Evaluated and abstracted for *PHYS* on *STN*

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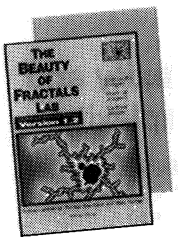
The World of Chaos and Fractals



H.-O. Peitgen, H. Jürgens, D. Saupe

The Beauty of Fractals Lab

Graphics Software for the Macintosh, Version 1.2

With the assistance of **T. Eberhardt, M. Parmet**

1994. Diskette 3 1/2", manual with 12 pp. DM 90,- (Suggested retail price plus 15% VAT in Germany)
ISBN 3-540-14212-6

With this program you can interactively explore the Mandelbrot set and its Julia sets including 3D renderings; you can find your own fantastic zooms and artistic color maps, and easily switch between 2D, 2.5D and 3D renderings.

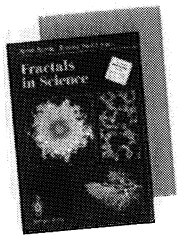
Hardware requirements:

Apple Macintosh with floating-point coprocessor (e.g. Mac II, IIx, IIcx, IIci, IIfx, IIvx, Quadra, PowerBook 180 or - with optional coprocessor - IIsi, IIvi, Mac LC, etc.) running at least system 6.0.2, color or gray scale monitor (256 colors/shades) and one megabyte memory (two or more are preferred). This software is System 7 compatible.

A. Bunde, S. Havlin (Eds.)

Fractals and Disordered Systems

1991. XIV, 350 pp. 163 figs., 10 tabs.
Hardcover DM 94,- ISBN 3-540-54070-9



A. Bunde, S. Havlin (Eds.)

Fractals in Science

1994. Approx. 300 pp. 120 figs. 15 figs. 1 3 1/2" MS-DOS Program diskette.
Hardcover DM 94,-
ISBN 3-540-56220-6

1994. Approx. 300 pp. 120 figs. 15 tabs. 1 3 1/2" Macintosh Program diskette
Hardcover DM 94,-
ISBN 3-540-56221-4

The fractal concept has become an important tool for understanding irregular complex systems in various scientific disciplines. These books discuss in great detail fractals in biology, heterogeneous chemistry, polymers and earth sciences. Beginning with a general introduction to fractal geometry, they continue with chapters on self-organized criticality, rough surfaces and interfaces, random walks, chemical reactions and fractals in chemistry, biology and medicine. A special chapter entitled "Fractals and Computers" presents computer demonstrations of fractal models.

System Requirements:

MS-DOS Program: IBM or compatible computer, EGA or VGA graphics card, 16 colors and 1 MB RAM

Macintosh Program: Macintosh System 6 or 7, b/w monitor 4MB RAM, 1 program needs a 256 color display

H.J. Korsch, H.J. Jodl

Chaos

A Program Collection for the PC

1994. Approx. 250 pp. 200 figs. incl. 2 diskettes MS-DOS 3 1/2" Hardcover
DM 98,- ISBN 3-540-57457-3

An outstanding selection of executable programs with introductory texts to chaos theory and its simulation is presented here. Students in physics, mathematics, and engineering will find a thorough introduction to fundamentals and applications in this field. Many numerical experiments and suggestions for further studies help the reader to become familiar with this fascinating topic. The Diskette: Ten executable programs and numerous examples are included on two 3 1/2" MS-DOS diskettes.

System requirements:

IBM or compatible PC using a 80286 processor or higher; a co-processor is recommended but not essential.

H.-O. Peitgen, H. Jürgens, D. Saupe

Chaos and Fractals

New Frontiers of Science

1st ed. 1992. Corr. 2nd printing 1994. XVI, 984 pp. 686 figs., 40 in color
Hardcover DM 102,-
ISBN 3-540-97903-4

The fourteen chapters of this book cover the central ideas and concepts of chaos and fractals as well as many related topics including the Mandelbrot Set, Julia Sets, Cellular Automata, L-Systems, Percolation and Strange Attractors.

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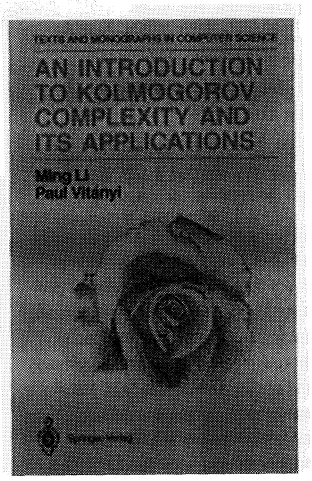
Kolmogorov Complexity



M. Li, P. M. B. Vitányi

An Introduction to Kolmogorov Complexity and Its Applications

1993. XX, 546 pp. 33 figs. 4 tabs.
(Texts and Monographs in Computer Science)
Hardcover DM 108,- ISBN 3-540-94053-7

With this book, the authors present an introduction to the central ideas and their applications of the Kolmogorov Complexity, the theory dealing with the quantity of information in individual objects. Although the mathematical theory of Kolmogorov complexity contains sophisticated mathematics, the amount of math one needs to know to apply the notions in widely divergent areas is very little. The authors' purpose is to develop the theory in detail and outline a wide range of illustrative applications.

O. Watanabe (Ed.)

Kolmogorov Complexity and Computational Complexity

1992. VII, 105 pp. (EATCS Monographs on Theoretical Computer Science)
Hardcover DM 50,- ISBN 3-540-55840-3

There are many ways to measure the complexity of a given object, but there are two measures of particular importance in the theory of computing: One is Kolmogorov complexity, which measures the amount of information necessary to describe an object. Another is computational complexity, which measures the computational resources necessary to recognize (or produce) an object.

This book consists of four survey papers concerning these recent studies on resource bounded Kolmogorov complexity and computational complexity. It also contains one paper surveying several types of Kolmogorov complexity measures.

V. E. Zakharov, V. S. L'vov, G. Falkovich

Kolmogorov Spectra of Turbulence I

Wave Turbulence

1992. XIII, 264 pp. 34 figs.
(Springer Series in Nonlinear Dynamics)
Hardcover DM 154,- ISBN 3-540-54533-6

This comprehensive introduction to a modern and rapidly developing field starts at a level suitable for graduate students and young researchers. Written by leading experts in the field, it provides a general theory of developed turbulence with a consistent description of phenomena in different media such as plasmas, solids, the atmosphere, oceans and space.

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