

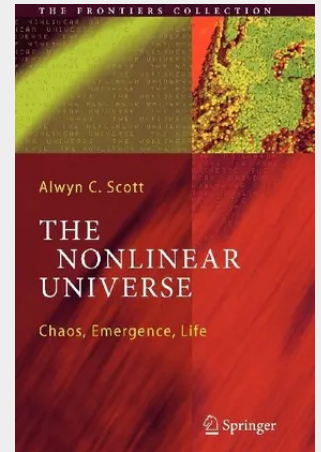
Scott

The Nonlinear Universe

Chaos, Emergence, Life

Written in Alwyn Scott's inimitable style, one that readers will find both lucid and accessible, this masterwork elucidates the explosion of activity in nonlinear science that began in the 1970s and 1980s and continues today. The book explains the wide-ranging implications of nonlinear phenomena for future developments in many areas of modern science, including mathematics, physics, engineering, chemistry, biology, and neuroscience. Arguably as important as quantum theory, modern nonlinear science – and an appreciation of its implications – is essential for understanding scientific developments of the twenty-first century.

It has been suggested that the big questions of science are answered, that science has entered a twilight age, where all the important knowledge is known and only the details need mopping up. And yet, the unprecedented progress in science and technology in the twentieth century has raised questions that weren't conceived of a century ago. This book argues that, far from being nearly complete, the story of science has many more chapters, yet unwritten. With the perspective of the century's advance, it's as if we have climbed a mountain and can see just how much broader the story is. Instead of asking how an apple falls from a tree, as Isaac Newton did in the 17th century, we can now ask: What is the fundamental nature of an apple (matter)? How does an apple (biological organism) form and grow? Whence came the breeze that blew it loose (meteorology)? What in a physical sense (synaptic ?rings) was the idea that Newton had, and how did it form? A new approach to science that can answer such questions has sprung up in the past 30 years. This approach, known as nonlinear science, is more than a new field. Put simply, it is the recognition that throughout nature, the whole is greater than the sum of the parts. Unexpected things happen.



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