



Sync: How Order Emerges From Chaos In the Universe, Nature, and Daily Life

By Steven H. Strogatz

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The tendency to synchronize may be the most mysterious and pervasive drive in all of nature. It has intrigued some of the most brilliant minds of the 20th century, including Albert Einstein, Richard Feynman, Norbert Wiener, Brian Josephson, and Arthur Winfree. At once elegant and riveting, *Sync* tells the story of the dawn of a new science. Steven Strogatz, a leading mathematician in the fields of chaos and complexity theory, explains how enormous systems can synchronize themselves, from the electrons in a superconductor to the pacemaker cells in our hearts. He shows that although these phenomena might seem unrelated on the surface, at a deeper level there is a connection, forged by the unifying power of mathematics.

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Bibliography

- Sales Rank: #72501 in Books
- Brand: Brand: Hyperion
- Published on: 2004-04-14
- Released on: 2004-04-14
- Original language: English
- Number of items: 1
- Dimensions: 8.00" h x .88" w x 4.13" l, .63 pounds
- Binding: Paperback
- 352 pages



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Editorial Review

From Publishers Weekly

Strogatz is a Cornell mathematician and pioneer of the science of synchrony, which brings mathematics, physics and biology to bear on the mystery of how spontaneous order occurs at every level of the cosmos, from the nucleus on up. In this eminently accessible and entertaining book, Strogatz explores the mysterious synchrony achieved by fireflies that flash in unison by the thousands, and the question of what makes our own body clocks synchronize with night and day and even with one another. He explores the sync of inanimate objects, inadvertently discovered by Christiaan Huygens in 1665 when he observed that his two pendulum clocks would swing in unison when they were within a certain distance of each other. A case of spontaneous synchrony occurred on the 2000 opening of the Millennium footbridge in London when hundreds of pedestrians caused the bridge to undulate erratically as they unconsciously adjusted their pace to the bridge's swaying—it was closed two days later. Strogatz explores synchrony in chaos systems, at the quantum level, in small-world networks as exemplified by the parlor game "six degrees of Kevin Bacon" and in human behavior involving fads, mobs and the herd mentality of stock traders. The author traces how the isolated and often accidental discoveries of researchers are beginning to gel into the science of synchrony, and he amply illustrates how the laws of mathematics underlie the universe's uncanny capacity for spontaneous order.

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From [Booklist](#)

The nonlinear dynamics of complex systems has been a most hip career field in recent decades. Publishers like to tap its professional popularity for a general audience—James Gleick's *Chaos* (1987) precipitated a trend leading up to such recent offerings as Albert-Laszlo Barabasi's *Linked* (2002). Strogatz nods to both predecessors in his tour of synchrony, which simply means ordered behavior through time, for example, the beat of a heart. Living things' exhibition of synchrony called forth the field of mathematical biology, whose principal figures and ideas occupy the first part of Strogatz's book; the second part delves into synchronic behavior of inanimate matter, such as superconductivity. Writing accessibly for the nonmathematical, Strogatz explains how "coupled oscillators" are central to synchrony; presents their ubiquity, from fireflies to vehicular traffic; and accents the personalities who make synchrony a creative frontier of science (or who went over to the dark side—paranormal research—such as Nobelist Brian Josephson). With a personable narrative voice, Strogatz delivers the goods for followers of complexity theory. *Gilbert Taylor*

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Review

"... If *SYNC* is, well, out of sync with global news, it's certainly in tune with the scientific world." -- *Newsweek*

"A vivid, first-hand account of what it is like to be at the beginning of a scientific revolution." -- *Focus*

"Compulsively readable." -- *Science*

"Describes dozens of sights and sounds that arise from collective, synchronized behavior . . . Delightful." -- *Discover*

"Every now and then you come across a science book that's just fun and amazing to read." -- *Leader-Post*

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"Offers a real sense of what it's like to be at the beginning of Something Big." -- *New Scientist*

"Strogatz . . . is a first-rate storyteller and an even better teacher . . . SYNC is a great read." -- *Nature*

"The most exciting new book of the spring . . . Masterful . . . A gem." -- *Popular Science*

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