

NEW BOOKS & MEDIA

The Farthest Voyager in Space

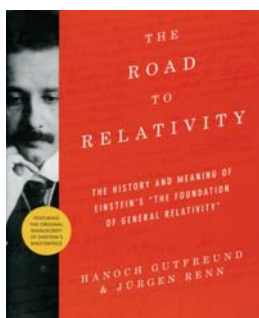
PBS, 2017. \$24.99 (DVD)

This beautiful, compelling PBS documentary chronicles the story of NASA's Voyager mission, from the first attempts to secure funding in the 1970s through current efforts to explore space beyond our solar system. By telling Voyager's story using a combination of historical footage and modern interviews, director Emer Reynolds helps viewers gain a new appreciation for the mission's epic scope. The film also highlights the scientific data *Voyager 1* and *Voyager 2* collected, including the first observation of an extraterrestrial volcanic eruption, the discovery of a magnetic field around Uranus, and the first pictures of Neptune's Great Dark Spot. Fans of space history should put *The Farthest* on their must-watch list. For a full review, see <http://physicstoday.scitation.org/doi/10.1063/PT.6.3.20170811a/full>.

—MB



CROSSING THE LINE PRODUCTIONS



The Road to Relativity The History and Meaning of Einstein's "The Foundation of General Relativity"

Hanoch Gutfreund and Jürgen Renn
Princeton U. Press, 2017. \$22.95 (paper)

Readers fascinated by the life and work of Albert Einstein will want to grab this volume, now available as an affordable paperback, that commemorates the centennial of his 1916 article "The foundation of general relativity." Theoretical physicist Hanoch Gut-

freund and historian of science Jürgen Renn team up to annotate Einstein's original, handwritten manuscript for the paper. Those handwritten pages are reproduced in full, and Gutfreund and Renn incorporate diagrams, historical anecdotes, photographs, and careful analysis of the physics into their comments. An English translation of the paper is also included.

—MB

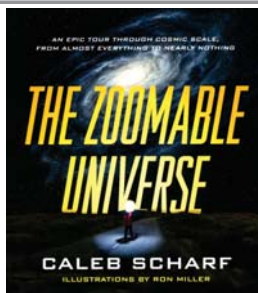
The Zoomable Universe

An Epic Tour Through Cosmic Scale,
from Almost Everything to Nearly
Nothing

Caleb Scharf, illustrated by Ron Miller
Scientific American/Farrar, Straus and Giroux, 2017. \$28.00

Starting far away—some 91 billion light-years from Earth—author Caleb Scharf begins his ambitious narrative at the edge of the observable universe. From the cosmic horizon, he works his way down from the 200 billion galaxies that make up the known universe to the 50 or so local-group galaxies in Earth's vicinity, then on to our own Milky Way galaxy, Earth itself, living organisms on Earth, the cells that make up living organisms, atoms, and, finally, subatomic particles. During Scharf's grand overview, he pauses to visit some "very, very cool places," such as the surface of Neptune, the back of an elephant, and the nucleus of a carbon atom. He also touches on other topics along the way, including dark matter, the nature of consciousness, and multiple universes. Images and infographics by illustrator Ron Miller add a visual dimension that helps to convey some of the more abstract concepts.

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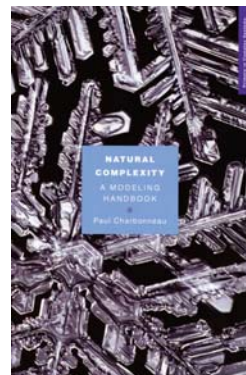


Natural Complexity A Modeling Handbook

Paul Charbonneau
Princeton U. Press,
2017. \$49.50 (paper)

Disease epidemics, forest fires, weather patterns, and other complex systems are of interest to researchers in many fields, including Paul Charbonneau, whose specialty is solar physics. In *Natural Complexity*, Charbonneau aims to introduce readers to the study of complex systems. The book is built around a series of simple mathematical models, which are also expressed in Python for those interested in programming. *Natural Complexity* is aimed at undergraduates and beginning graduate students and assumes no prior knowledge of programming or mathematics beyond precalculus. The well-chosen examples are interesting, and the color printing enhances the clarity and readability of the figures.

—MB



Quantum Theory from First Principles

An Informational Approach

Giacomo Mauro
D'Ariano,
Giulio Chiribella,
and Paolo Perinotti
Cambridge U. Press,
2017. \$74.99

More than two decades of research and teaching are reflected in this ambitious textbook by quantum theorists Giacomo D'Ariano, Giulio Chiribella, and Paolo Perinotti. *Quantum Theory from First Principles* focuses particularly on the theory's applications to quantum information. The book will be of interest to advanced undergraduates in physics and computer science who are looking to take a deeper dive into the foundations of quantum theory. Students and instructors should be warned that *Quantum Theory from First Principles* is not for the mathematically faint of heart, but it does contain more than 200 problems and worked solutions to help readers master its concepts.

—MB

