

**Scott, Alwyn**

**Encyclopedia of nonlinear science.** (English) Zbl 1177.00019

New York, NY: Routledge (ISBN 1-57958-385-7/hbk). xliv, 1053 p. (2005).

The Encyclopedia of Nonlinear Science provides a good resource for researchers, students and lecturers with an interest in nonlinear science. It contains descriptions for 438 entry subjects with a wide thematic range containing the following categories:

- General: History of nonlinear science, Common examples of nonlinear phenomena;
- Methods and models: Analytical methods, Computational methods, Topological methods, Chaos, noise and turbulence, Coherent structures, Dynamical systems, General phenomena, Maps, Mathematical models, Stability;
- Disciplines: Astronomy and astrophysics, Biology, Chemistry, Condensed matter and solid-state physics, Earth science, Engineering, Fluids, Neuroscience, Nonlinear optics, Plasma physics, Social science, Solid mechanics and nonlinear vibrations, Theoretical physics.

The entry subjects are written by professional contributors, among which there are many leading scientists in the corresponding fields. Examples of entry subjects are: Belousov-Zhabotinsky reaction, Hopf bifurcation, Artificial intelligence, Controlling chaos, DNA solitons, Josephson junctions, Kuramoto-Sivashinsky equation, Semiconductor laser, Wavelets, Solitons, etc. The board of advisors for the Encyclopedia were F. Busse, A. Degasperis, W. Ditto, Ch. Eilbeck, S. Flach, H. Flaschka, H. Hacken, J. Keener, Yu. Kivshar, Y. Kuramoto, D. McLaughlin, L. Ostrovsky, E. Ott, A. Winfree, L. Yakushevich, and L.-S. Young.

The Encyclopedia does contain information that is organized and presented as a reference tool to the user and a landmark to the body of knowledge that has accumulated in nonlinear science. After the each entry subject, one can find hints for further literature.

Reviewer: [Sergiy Yanchuk \(Berlin\)](#)

#### MSC:

- [00A20](#) Dictionaries and other general reference works
- [34-00](#) General reference works (handbooks, dictionaries, bibliographies, etc.) pertaining to ordinary differential equations
- [35-00](#) General reference works (handbooks, dictionaries, bibliographies, etc.) pertaining to partial differential equations
- [37-00](#) General reference works (handbooks, dictionaries, bibliographies, etc.) pertaining to dynamical systems and ergodic theory
- [82-00](#) General reference works (handbooks, dictionaries, bibliographies, etc.) pertaining to statistical mechanics

Cited in **37** Documents