

## **Book Review: *Chaos and Statistical Methods***

**Chaos and Statistical Methods.** Proceedings of the Sixth Kyoto Summer Institute. Edited by Y. Kuramoto. Springer-Verlag, Berlin (1984) (273 pages).

These proceedings consist of the contributed papers of a meeting whose intended purpose was to clarify "various aspects of chaotic systems appearing in different scientific disciplines, critically examining related mathematical methods developed so far, thus preparing for possible breakthroughs, among others, for the opening of a new period of statistical mechanics of deterministic systems." The lectures do capture some of the excitement in the field of nonlinear dynamics, but in order to present the vast array of nonlinear mathematical concepts, e.g., chaotic orbits, horse-shoe maps, fractals, fractal natural boundaries, Cantor set spectra, fuzzy bifurcations, renormalization groups, etc., the jargon comes hard and fast and would probably overwhelm the uninitiated. However, for those that have been following the activity in this area, as well as those making active contributions, the lectures do provide a rapid overview on what new concepts investigators have found useful in the analysis of nonlinear systems. On the experimental side, the testing of strange attractor concepts and other sources of *fluctuations* using, e.g., Rayleigh–Benard systems, chemical reactions, optical turbulence, resistance fluctuations, etc., indicates the levels of physical verification each of these mathematical concepts has attained.

The individual papers are terse and, therefore, would not be recommended as pedagogical tools, however, they are quite good as advertisements for particular mathematical techniques or experimental results. The quality of the writing runs from limpid clarity to muddled, but in general is acceptable. In summary, I would recommend these proceedings to the researcher but not to the graduate student.

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