Book Review

Fractal-Based Point Processes. S.B. Lowen and M.C. Teich John Wiley and Sons, Hoboken, New Jersey, 2005.

It would be a matter of some difficulty to open a book on almost any one of the sciences, be it biological, chemical or physical, without encountering the notion and/or application of fractal phenomena. The number of research articles, reviews, and monographs on fractals appears to increase nearly exponentially with time. Is there room for yet another book on the subject?

You bet there is—when it's the book under review! Although the focus of the book is on fractals, there is sufficient background material given for the reader to understand the origin of the subject beginning with the general notions that underlie point processes, be they simple or fractal. This is the basis for the large number of its applications gathered in this dense monograph, together with many of the technical details, e.g., parameter and function identification and estimation, needed to turn the more elaborate theory into useable practical results in various scientific and engineering fields. As examples of material related to fractals, but not necessarily directly identifiable as being fractal topics, the authors present excellent introductions to variants of renewal theory, chaos, ordinary and fractional Brownian motion in addition to a good sampling of material on wavelets. More directly related to fractal topics are introductory expositions on fractal shot noise and fractal telegraph signals.

The development of all of the topics is remarkably clear, although occasionally I found the presentation of figures a little confusing. One topic on which exposition might profitably have been enlarged is that of the currently popular theory of networks. There is an enormous amount of material in the book, obviously aimed at establishing it both as a compendium and as well as a text complete with exercises together with their solutions. It obviously contains more material than could be taught in a single semester, and even probably more than could be taught in a single year. However, anyone having any interest in, or potential applications

of fractology will want to have a copy of this book at their bedside for the next
few years at the very least and on their reference shelves.

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