Book Reviews

Asmussen, S. and H. Hering: Branching Processes. Birkhäuser, Boston–Basel–Stuttgart 1983. X + 461 S.

The classical theory of branching processes has been thoroughly treated by such authors as *Harris, Athreya and Ney, Mode, and Jagers*. Over the past decade, however, there has been much research carried out on branching processes which undergo a migration on some domain. Discrete-time processes with (possibly) infinitely many particles on unbounded domains have been considered by *Matthes, Kerstan and Mecke*.

This research monograph is concerned primarily with continuous-time branching diffusions on bounded domains. It is largely self-contained, with a well-organized review of the limit theory for simple branching processes (Part *B*), and an appendix containing miscellaneous results required in the text.

The major results are contained in Part *C*. After establishing the mathematical foundations for branching diffusions in chapter 5, analogues of some of the classic limit laws are proven for critical and subcritical processes in chapter 6. Chapter 7 deals with problems related to supercritical processes, such as extinction probabilities, normalizing constants and almost sure convergence. Further results on the critical and supercritical processes are given in chapter 8. Part *C* is, of necessity, highly technical and requires careful reading.

Part *D* gives a very brief introduction to three related models: branching diffusions on unbounded domains, age-dependent processes and two-sex models. This section is somewhat sketchy; for example, it might have been of interest to point out some of the fundamental differences between processes on bounded and unbounded domains. The critical and subcritical branching Brownian motions have been virtually ignored. However, as pointed out by the authors, it is impossible to present a complete treatment of branching processes with spatial structure due to the vast and diverse literature.

In summary, this monograph provides a valuable contribution to the theory of general branching processes, and will be of particular use to researchers in the area.

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