

<<极值,正则变差和点过程(英文版)>>

图书基本信息

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内容概要

本书讲述了学习独立同分布随机变量和向量的极值现象的数学背景和随机过程技巧。重在强调极值的三个重要的话题，规则变化函数的解析理论，点过程和随机测度的概率论，度量空间概率测度的若收敛的渐进分布逼近之间的联系。

目次：基础；吸引域和规范常数；收敛的质量；记录和极过程；多变量极值。

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Association

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章节摘录

Extreme value theory is an elegant and mathematically fascinating theory as well as a subject which pervades an enormous variety of applications. Consider the following circumstances: Air pollution monitoring stations are located at various sites about a city. Government regulations mandate that pollution concentrations measured at each site be below certain specified levels. A skyscraper is to be built near Lake Michigan and thus will be subject to wind stresses from several directions. Design strength must be sufficient to withstand these winds. Similarly, a mechanical component such as an airplane wing must be designed to withstand stresses from several sources. Dams or dikes at locations along a body of water such as a river or sea must be built high enough to exceed the maximum water height. A mining company drills core samples at points of a grid in a given region. Continued drilling will take place in the direction of maximum ore concentration. Athletic records are frequently broken. A common feature of these situations is that observational data has been or can be collected and the features of the observations of most interest depend on largest or smallest values; i.e. on the extremes. The data must be modeled and decisions made on the basis of how one believes the extreme values will behave. This book is primarily concerned with the behavior of extreme values of independent, identically distributed iid observations. Within the iid framework there are surprising depth, beauty, and applicability. The treatment in this book is organized around two themes. The first is that the central analytic tool of extreme value theory is the theory of regularly varying functions, and the second is that the central probabilistic tool is point process theory and in particular the Poisson process. Accordingly we have presented a careful exposition of those aspects of regular variation and point processes which are essential for a proper understanding of extreme value theory.

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