

FOURTEENTH CONFERENCE ON STOCHASTIC PROCESSES AND THEIR APPLICATIONS

Gothenburg, Sweden, 12-16 June 1984

INTRODUCTION

The fourteenth Conference on Stochastic Processes and their Applications was held on the campus of the Chalmers University of Technology in Gothenburg, Sweden, over the period 12-16 June 1984. The Conference was arranged under the auspices of the Committee for Conferences on Stochastic Processes of the ISI's Bernoulli Society for Mathematical Statistics and Probability and was supported by the Swedish Natural Sciences Research Council, the Swedish Ministry of Education, Chalmers University of Technology, the Swedish Institute of Applied Mathematics, Swedish university departments of mathematics and mathematical statistics and Swedish industry.

The Conference was attended by 214 participants representing 29 different countries. The scientific program consisted of 18 invited and 112 contributed papers. The following are the abstracts of the papers presented.

On the Additive Functionals of Branching ProcessesV.M. Shurenkov, *Institute of Mathematics, Kiev, USSR*

We define the additive functionals on the trajectories of branching processes. It is shown that in the critical and supercritical cases under the condition of non-extinction the value of the additive functional is asymptotically linearly dependent on the number of particles. Some examples are given.

Error Rates and Estimation Errors in Extreme Value TheoryRichard L. Smith, *Imperial College, London, England*

The theory of regularly varying functions is of great importance in the limit theorems of extreme value theory. If the condition defining regular variation is strengthened to include a remainder term, then one can determine rates of convergence in these limit theorems (Smith 1982, Cohen 1982). In this talk I shall survey these ideas, and then discuss more recent work relating to the statistical estimation of extremes. In particular, for the case that $1 - F(x)$ (for some d.f. F) is regularly varying with index $-\alpha$ ($\alpha > 0$), we construct estimators of α and show how the estimation error is related to the size of the remainder term.

References

- R.L. Smith, Uniform rates of convergence in extreme value theory. *Adv. Appl. Prob.* 15 (1982) 600-622.
 J.P. Cohen, Convergence rates for the ultimate and penultimate approximations in extreme value theory, *Adv. Appl. Probab.* 15 (1982) 833-854.

A Genealogical View of some Stochastic Models in Population GeneticsSimon Tavaré, *Colorado State University, CO, USA*

Many classical population genetics problems are studied by a direct analysis of stochastic gene frequency models. Such methods have obscured the central role played by genealogy, the relationship between individuals in the population.

This paper reviews some recent results about the stochastic structure of the genealogy of large haploid populations. Applications of the results to an important class of population genetics models are given.

Reflected Brownian Motion in a Polyhedral RegionR.J. Williams, *Courant Institute of Mathematical Sciences, New York University, USA*

This work is concerned with the study of Brownian motion in a three-dimensional polyhedral region with instantaneous reflection at the boundary in given constant