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THE CHINESE UNIVERSITY OF HONG KONG

Joint Seminar

Department of Statistics and
The Institute of Mathematical Sciences

Statistical Inference for Ergodic Diffusion Process

by

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on

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in

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The Chinese University of Hong Kong

Abstract:

This work is an introduction to the statistical inference for continuous time diffusion processes. It represents the large samples theory of estimation (parametric and nonparametric) for the model of one-dimensional ergodic diffusion processes. The statements of the problems are in the spirit of classical mathematical statistics. Special attention is paid to the asymptotically efficient procedures. In parameter estimation problems (trend coefficient depends on unknown finite-dimensional parameter) the properties of estimators (maximum likelihood, Bayesian, minimum distance, one-step MLE etc.) are described in regular (smooth w.r.t. parameter) and non regular (delay, cusp and change-point estimation) situations. Particularly, the consistency, limit distributions and asymptotic efficiency of these estimators are established as well as the properties of these estimators in non standard situations (misspecified, non-identifiable, null Fisher information etc.). In nonparametric statements (trend coefficient is unknown function) the problems of estimation of invariant distribution function, density and trend coefficient are considered. In every problem the lower bounds on the risk of all estimators are proposed and the asymptotically efficient estimators in the sense of these bounds are constructed.

All are Welcome