DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
UNIVERSITY OF SOUTHERN DENMARK, ODENSE

Statistics seminar

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Filtering and non-linear smoothing of diffusion processes

Tuesday 12 February 2019, 13:15-14:00
in IMADAs seminar room

Abstract

Suppose we discretely observe a diffusion process and we wish to estimate parameters appearing in either the drift coefficient or the diffusion coefficient. We derive a representation of the conditional distribution as change of measure to be embedded as step in a Monte-Carlo procedure to estimate those parameters. The technique is based on solving the reverse time filtering problem for a linear approximation of the diffusion and a change of measure to correct for the difference between the linear approximation and the true process. We apply this to several problems of interest, for example in shape analysis or in tracking convective cloud systems from satellite data with low time resolution.

Host: Hans Christian Petersen