

THE CHINESE UNIVERSITY OF HONG KONG

Department of Statistics

will present a seminar entitled

A storage model for modelling exposure to food contaminants

by

Dr. Jessica Tressou
INRA-Met@risk & HKUST-ISMT

on

Tuesday, 22 April 2008
2:00pm – 3:00pm

in

Lady Shaw Building C5
The Chinese University of Hong Kong

Abstract:

This talk introduces a continuous-time piecewise deterministic Markov process for describing the temporal evolution of exposure to a given food contaminant. The quantity of food contaminant present in the body evolves through its accumulation after repeated dietary intakes on the one hand, and the pharmacokinetics behavior of the chemical on the other hand. In the dynamic modeling considered here, the accumulation phenomenon is modeled by a simple marked point process with positive i.i.d. marks, and elimination in between intakes occurs at a linear rate. Via embedded chain analysis, ergodic properties of this extension of the standard compound Poisson dam with linear release rate are investigated, the latter being of crucial importance in describing the long-term behavior of the exposure process and assessing values such as the proportion of time the contaminant body burden is over a certain threshold. We also highlight the fact that the exposure process is generally not directly observable in practice and establish a validity framework for simulation-based statistical methods by coupling analysis. The case of methyl mercury exposure in the French population will be our running illustration of the proposed model outcomes.

Full paper available at <http://aimsciences.org/journals/pdfs.jsp?paperID=3098&mode=full>

All are Welcome