Stanford University
Department of Statistics

DEPARTMENTAL SEMINAR

*** Note Special Day ***

4:15pm, Thursday, August 2, 2012
Sequoia Hall Room 200
Cookies served at 3:45pm, 1st floor Lounge.

Speaker:  Hock Peng Chan, National University of Singapore

Title:  Sequential Monte Carlo: Some recent advances

Abstract:

The use of particle filtering has grown rapidly in recent years, with applications in rare event simulation, engineering and finance. We provide a fundamental martingale theory for particle filters that lead to likelihood ratio based unbiased estimators. The usual biased particle filters can be derived from these estimators and have a modified martingale representation. The martingale theory is used to prove the asymptotic normality of the estimators and in addition, establishes the consistency of standard error estimators that take into account the interaction between particles. We end the talk on recent developments on the use of Markov chain Monte Carlo to diversify the particles and hence deal with degeneracy issues in hyper-parameter estimation in particle filters.

This is joint work with Tze-Leung Lai.