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DEPARTMENT OF STATISTICS AND BIOSTATISTICS
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Seminar

Speaker: **Professor Winfried Barta**
George Washington University

Title: **Forgetting the starting state in interacting tempering**

Time: **3:20 – 4:20pm, Wednesday, December 11, 2013**

Place: **552 Hill Center**

Abstract

Simulating multimodal probability distributions on high dimensional spaces can be a difficult problem. Many practical algorithms use local move Markov chains that can easily get "stuck" in one of the modes of the distribution. Tempering is a well-known strategy to try to overcome this problem. However, for some "difficult" distributions like the (ferromagnetic, mean-field) Potts model, even parallel and serial tempering algorithms are known to mix exponentially slowly.

Interacting tempering (Fort et al. 2011) is a non-Markovian process that tries to improve on parallel or serial tempering algorithms. It can be seen as a simplified version of the equi-energy sampler by Kou et al. (2006). The non-asymptotic analysis of its convergence behavior is an open problem. As a first step towards addressing this, we show that under easy to verify assumptions on the probability distribution of interest, the interacting tempering process rapidly forgets its starting state. The result applies, among others, to the Ising and Potts models (in mean field or on a bounded degree graph), Edwards-Anderson spin glasses, and exponential random graph models.

**** Refreshments will be served @2:50pm in Room 502 Hill Center ****