Colloquium

Michigan State University
Department of Statistics and Probability

Jonathan Taylor
Department of Statistics
Stanford University

Suprema of random fields with applications

Tuesday, January 29, 2013
10:20 a.m. - 11:10 am
Refreshments 10:00 am
C405 Wells Hall

Abstract:

We describe an integral geometric approximation to the tail distribution of smooth random fields derived from Gaussian fields. The main tool is a formula for computing expected integral geometric invariants such as the Euler characteristic of the excursion set of a smooth Gaussian field. The terms in this formula relate to Weyl's classical volume of tubes formula as well as a formula for the Gaussian measure of a tube around a domain in Euclidean space. We sketch some applications of the results to a typical (if somewhat oversimplified) population study in neuroimaging as pioneered by Keith Worsley.

To request an interpreter or other accommodations for people with disabilities, please call the Department of Statistics and Probability at 517-355-9589.