

MICHIGAN STATE UNIVERSITY
Department of Statistics and Probability

COLLOQUIUM

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Testing for Isotropy and Geometric Features of Needlets Excursion Sets

Tuesday, September 24, 2013
10:20am – 11:10am
Refreshments 10:00am
C405 Wells Hall

Abstract

In this talk, we shall be concerned with geometric functionals and excursion probabilities for some nonlinear transforms evaluated on wavelet/needlet components of spherical random fields. For such fields, we consider smoothed polynomial transforms, such as those arising from local estimates of angular power spectra and bispectra; we focus on the geometry of their excursion sets, and we study their asymptotic behaviour, in the high-frequency sense. We put particular emphasis on the analysis of Euler-Poincaré characteristics, which can be exploited to derive extremely accurate estimates for excursion probabilities. The present analysis is motivated by the statistical investigation of asymmetries and anisotropies in CMB data.

The paper is based on joint work with Sreekar Vadlamani.

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