

Department of Applied Mathematics and Statistics
The Johns Hopkins University

SEMINAR

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February 19, 2004
304 Whitehead Hall
Refreshments: 3:30 p.m.
Seminar: 4:00 p.m.

RANDOM SUMS, MELLIN TRANSFORMS,
GAUSSIAN RANDOM FIELDS, SMALL DEVIATIONS, AND REVERSION

ABSTRACT

I will show how to use Mellin transforms (a standard tool in the probabilistic analysis of algorithms) to compute a full asymptotic expansion for the tail of the Laplace transform of the squared L^2 -norm of any multiply-integrated Brownian sheet. I will also show how to use “reversion” to obtain corresponding strong small-deviation estimates.

As time permits, I will discuss how the same methods can be applied to other Gaussian random fields whose covariance operators are tensor products of marginal operators.

(This is joint work with department colleague Fred Torcaso.)