Karl Liechty
Department of Mathematical Sciences
DePaul University

Title: Nonintersecting Brownian motions on the unit circle

Abstract:

Nonintersecting Brownian bridges on the unit circle form a determinantal point process whose kernel is expressed in terms of a system of discrete orthogonal polynomials which may be studied using Riemann--Hilbert techniques. If the Brownian motions have a drift, then the weight of the orthogonal polynomials becomes complex. I will discuss the tacnode and k-tacnode processes, which are related to the Painleve II function, as scaling limits of Nonintersecting Brownian motions on the unit circle and will discuss some of the features and difficulties of Riemann--Hilbert analysis of discrete orthogonal polynomials with varying complex weights.

This is joint work with Dong Wang and Robert Buckingham.