

*Department of Mathematics,
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Math 288 - Probability & Statistics

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Tacnode processes, winding numbers, and Painleve II

Abstract:

I will discuss a model of nonintersecting Brownian bridges on the unit circle, which produces quite a few universal determinantal processes as scaling limits. I will focus on the tacnode process, in which two groups of particles meet at a single point in space-time before separating, and introduce a new version of the tacnode process in which a finite number of particles “switch sides” before the two groups separate. We call this new process the k-tacnode process, and it is defined by a kernel expressed in terms of a system of tau-functions for the Painleve II equation. Technically, our model of nonintersecting Brownian bridges on the unit circle is studied using a system of discrete orthogonal polynomials with a complex (non-Hermitian) weight, so I’ll also discuss some of the analytical obstacles to that analysis. This is joint work with Dong Wang and Robert Buckingham

Host: Tianyi Zheng

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10:00 AM

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