Date: 2020.10.22. 9:00-10:00 (Beijing time).

Tencent meeting: 606 1859 8357

Zoom: 666 913 56444 (psw 123456)

Speaker: Dapeng Zhan (Michigan State University)

Title: A method of two-curve Green's function

Abstract: Schramm-Loewner evolution (SLE_κ) is a one-parameter family of random fractal curves growing in plane domains. Given an SLE_κ curve γ with $\kappa \in (0,8)$ in a domain D and a point z_0, the Green's function for γ at z_0 is the limit

$$G(z_0) := \lim_{r \downarrow 0} r^{-\alpha} \mathbb{P}[\mathrm{dist}(z_0, \gamma) < r],$$

for some exponent $\alpha > 0$, if the limit converges and is not trivial, i.e., not zero. There are several variations. The z_0 may be an interior point or a boundary point of D. In the former case α is related to the Hausdorff dimension d of γ by $\alpha = 2 - d = 1 - \frac{\kappa}{8}$. The single point z_0 may be replaced by a number of points $z_1, \dots, z_n$.

In this talk, I will describe a method of proving the existence of Green's function for a pair of SLE_κ curves (γ_1, γ_2) in a multiple-SLE_κ configuration. The function at a point z_0 is the limit

$$\lim_{r \downarrow 0} r^{-\alpha} \mathbb{P}[\mathrm{dist}(z_0, \gamma_j) < r, j = 1, 2].$$

The z_0 could be an interior point or a boundary point. The method can also be used to derive a Green's function related to cut-points of a single SLE curve