Mon., August 11	09:00 ∼ 09:40	Mugunghwa	40min talk

Extreme point of two-dimensional discrete Gaussian Free Field

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Recent years have witnessed much progress in the understanding of the two-dimensional Discrete Gaussian Free Field (DGFF). In my talk I will discuss a specific aspect of this; namely, the asymptotic law of the extreme point process for the DGFF on lattice approximations of a bounded open set D in the complex plane with zero boundary conditions outside. It turns out that, for points arising from nearly-maximal local maxima, the limit process is Poisson with intensity that is the product of a random measure $Z^D(\mathrm{d}x)$ in the spatial coordinate and the Gumbel intensity in the field coordinate. The conformal invariance of the continuum Gaussian Free Field manifests itself in the properties of the law of random measure $Z^D(\mathrm{d}x)$. Indeed, this law obeys a canonical transformation rule under conformal maps of the domain D inherits the Gibbs-Markov property of the DGFF. These permit us to link $Z^D(\mathrm{d}x)$ to the measure representing the volume form of the critical two-dimensional Liouville Quantum Gravity. Based on joint work with Oren Louidor.