

Intersections of Topological Recursion, Conformal Field Theory, and Random Geometry



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Baptiste Cercle

Thursday 28 August 2025 16:15 (1 hour)

Boundary Liouville theory: from classical to quantum and back again.

In this talk we will discuss a geometric problem related to boundary Liouville CFT and closely related to uniformisation of open Riemann surfaces. Namely in a first part we will consider the classical problem of finding a conformal metric with constant scalar curvature, piecewise constant geodesic curvature and prescribed conical singularities and corners. In particular we will explain how to define the associated classical stress-energy tensor using CFT-inspired techniques.

In a second part we will show, based on its probabilistic formulation, that the semi-classical limit of boundary Liouville CFT describes this classical geometry. Thanks to this we can determine the accessory parameters associated to the classical stress-energy tensor and show that it gives rise to higher equations of motion.