

Stanford University
Departments of Mathematics and Statistics

PROBABILITY SEMINAR

*** Extra Seminar: Special Time ***

4:30pm, Monday, November 11, 2019
Sequoia Hall Room 200

Refreshments served at 4pm in the Lounge.

Speaker: Jason Miller, *University of Cambridge*

Title: **Existence and uniqueness of the Liouville quantum gravity metric for $\gamma \in (0, 2)$**

Abstract:

Liouville quantum gravity (LQG) is in some sense the canonical model of a two-dimensional Riemannian manifold and is defined using the (formal) metric tensor

$$e^{\gamma h(z)}(dx^2 + dy^2)$$

where h is an instance of some form of the Gaussian free field and $\gamma \in (0, 2)$ is a parameter. This expression does not make literal sense since h is a distribution and not a function, so cannot be exponentiated. Previously, the associated metric (distance function) was constructed only in the special case $\gamma = \sqrt{8/3}$ in joint work with Sheffield. In this talk, we will show how to associate with LQG a canonical conformally covariant metric for all $\gamma \in (0, 2)$. It is obtained as a limit of certain approximations which were recently shown to be tight by Ding, Dubédat, Dunlap and Falconet.

This is based on joint work with Ewain Gwynne.