Seminar/Talk

Epstein curves and holography of the Schwarzian action

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Host: Laszlo Erdös & Jan Maas

The circle can be seen as the boundary at infinity of the hyperbolic plane. We give a 1-to-2 dimensional holographic interpretation of the Schwarzian action, by showing that the Schwarzian action (which is a function of a diffeomorphism of the circle) is equal to the hyperbolic area enclosed by an "Epstein curve" in the disk. A dimension higher, the Epstein construction was used to relate the Loewner energy (a function of a Jordan curve related to SLE and Brownian loop measures) to renormalized volume in hyperbolic 3-space. In this talk I will explain how to construct the Epstein curve, how the bi-local observables of Schwarzian field theory can be interpreted as a renormalized hyperbolic length using the same Epstein construction, and discuss what we know so far about the relationship between the Schwarzian action and the Loewner energy, with some intuition coming from Brownian loop and bubble measures. This is primarily based on joint work with Franco Vargas Pallete and Yilin Wang, and also on forthcoming joint work with Greg Lawler, Fredrik Viklund, and Yilin Wang.

Monday, November 3, 2025 04:00pm - 05:00pm
Mondi Seminar Room 2, Central Building

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