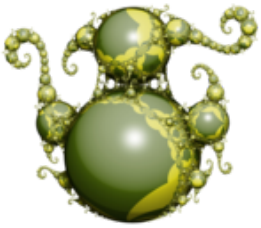

ID de Contribution: **15** Type: **Non spécifié**

# Epstein's construction and holography of Loewner energy and Schwarzian action

*jeudi 26 juin 2025 16:00 (1 heure)*

The group $\mathrm{PSL}(2,\mathbb{C})$ acts on the hyperbolic three-space $\mathbb{H}^3$ as the group of isometries and on the boundary identified with the Riemann sphere $S^2$ as conformal automorphisms. The holographic principle looks to encode the conformally invariant quantities on the Riemann sphere into geometric quantities in $\mathbb{H}^3$ and vice versa. In one lower dimension, we may also study the correspondence between $\mathbb{H}^2$ and the circle $S^1$, where the group $\mathrm{PSL}(2,\mathbb{R})$ acts.

The Loewner energy is a conformally invariant quantity that measures the roundness of Jordan curves on the Riemann sphere and has close links to the geometry of universal Teichmuller space and SLE loop measures. We show that the Loewner energy equals the renormalized volume of a submanifold of the hyperbolic $\mathbb{H}^3$ constructed using a truncation introduced by Epstein. Applying Epstein's truncation in one lower dimension, we show that the renormalized area of $\mathbb{H}^2$ coincides with minus the Schwarzian action of circle diffeomorphisms.

This is based on joint works with Martin Bridgeman, Ken Bromberg, Franco Vargas Pallete and Catherine Wolfram.

**Orateur:** WANG, Yilin (IHES)