Contribution ID: **23** Type: **not specified**

# Andrew Lucas - The reconstruction map in JT gravity

*Friday 17 January 2025 08:45 (45 minutes)*

An open question in AdS/CFT is how to reconstruct semiclassical bulk operators precisely enough that non-perturbative quantum effects can be computed. We propose a set of physically-motivated requirements for this reconstruction map, and we explicitly construct a map satisfying these requirements in JT gravity. Intuitively, our map is found by canonically quantizing a canonically-transformed classical JT Hamiltonian in a box (rather than on a line). The canonical transformation is chosen to ensure the correct spectrum of the fundamental quantum theory. We then obtain analytical predictions for the dynamics of the wormhole length, including its quantum fluctuations, by using our reconstruction map along with techniques from quantum ergodicity theory. The random matrix statistics of non-perturbative JT implies that the average wormhole length is non-monotonic in time, which provides a non-trivial prediction of our formalism.

**Presenter:** LUCAS, Andrew