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Periodic dilaton gravity and double-scaled SYK

Tuesday, June 17, 2025 10:00 AM (1 hour)

I will discuss 2d dilaton gravity theories with a periodic potential. The periodicity implies a symmetry under discrete shifts in the momentum conjugate to the length of geodesic slices. This symmetry is to be gauged and discretizes the geodesic lengths. Moreover, lengths below a certain threshold become null states. Because of these, the entropy deviates drastically from the semiclassical Bekenstein-Hawking result. I will pay special attention to sine-dilaton gravity, which is holographically dual to double-scaled SYK, and for which I will discuss two limiting dualities: one between flat space quantum gravity and the Heisenberg algebra, and one between topological gravity and the Gaussian matrix integral.

Presenter: PARMENTIER