

Replica Wormholes and the Black Hole Interior

Thursday, 20 February 2020 08:00 (30 minutes)

Naïve semiclassical arguments suggest that the entropy of Hawking radiation should continue to grow even at very late times, a result that is inconsistent with the unitarity of quantum mechanics. In this talk, I will argue that a more careful replica trick calculation shows that the gravitational path integral becomes dominated (at late times) by saddles containing spacetime wormholes. These wormholes cause the entropy to decrease after the Page time, consistent with unitarity, and allow information to escape from the interior of the black hole.

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