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## **On Information Loss in Two-Dimensional CFT**

Thursday 23 June 2016 11:30 (1 hour)

We discuss information loss from black hole physics in AdS\_3, focusing on two sharp signatures infecting CFT\_2 correlators at large central charge c: 'forbidden singularities' arising from Euclidean-time periodicity due to the effective Hawking temperature, and late-time exponential decay in the Lorentzian region. We study an infinite class of examples where forbidden singularities can be resolved by non-perturbative effects at finite c, and we show that the resolution has certain universal features that also apply in the general case. Analytically continuing to the Lorentzian regime, we find that the non-perturbative effects that resolve forbidden singularities qualitatively change the behavior of correlators at times t<sup>\*</sup>S\_BH, the black hole entropy. This may resolve the exponential decay of correlators at late times in black hole backgrounds. By Borel resumming the 1/c expansion of exact examples, we explicitly identify 'information-restoring' effects from heavy states that should correspond to classical solutions in AdS\_3. Our results suggest a line of inquiry towards a more precise formulation of the gravitational path integral in AdS\_3.

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