Contribution ID: **1248** Type: **Cosmology**

The Price of Curiosity: Information Recovery in de Sitter Space

Wednesday 26 May 2021 15:30 (15 minutes)

Recent works have revealed that the fine-grained entropy of a non-gravitating subsystem, when entangled with a gravitating region, can receive contributions from so-called quantum extremal islands. Applied to black holes, this reproduces the unitary Page curve for Hawking radiation. In this talk, I will show how these results can be applied to the thermal radiation measured by a static observer in de Sitter space. Focusing on JT gravity, I will emphasize the necessity of going beyond the thermal equilibrium of the Bunch-Davies state. We will see that a quantum extremal island can contribute to the fine-grained entropy, suggesting unitarity of the radiation, but this comes at a price: when the island appears a singularity forms that a static observer will eventually hit.

Summary

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Session Classification: Cosmology V