ASU Department of Physics
Arizona State University

COLLOQUIUM

Thursday, September 28, 2023

Refreshments at 3:15pm outside PSF 101
Colloquium from 3:30pm - 4:30pm in PSF 101

The Entropy of Hawking Radiation

Professor Thomas Hartman

Cornell University

Abstract:

When black holes evaporate, they seem to violate quantum mechanics by creating too much entropy. This leads to the black hole information paradox, discovered by Hawking in 1976. I will describe recent progress on this problem that involves a new understanding of how to calculate the entropy of Hawking radiation. This relies on connections between classical geometry, quantum entanglement, and spacetime topology. The paradox is not yet overcome, however, because the same ingredients used to cure the entropy lead to new puzzles.

Biography:

Hartman did his PhD at Harvard and postdoctoral fellowships at the IAS in Princeton and the KITP in Santa Barbara. He is now a professor at Cornell University. His research is on quantum gravity and quantum field theory, with a focus on the connections between black holes and quantum information.

Host: Prof. Cindy Keeler
View our Fall 2023 Physics Colloquium schedule at https://physics.asu.edu/colloquia