



Universidad
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EHU Quantum Center

Theoretical Physics Seminar Series

Counting microstates of black holes with the semiclassical path integral

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Abstract: In this talk I will construct an infinite family of microstates with geometric interiors for eternal black holes in general relativity with a negative cosmological constant. Wormholes in the Euclidean path integral for gravity cause these states to have small, but nonzero, quantum mechanical overlaps that have a universal form. The overlaps have a dramatic consequence: the microstates span a Hilbert space of log dimension equal to the Bekenstein-Hawking entropy. The construction does not depend on details of the black hole, and can include general quantum corrections, near or far from extremality. For supersymmetric black holes, these microstates differ from other recent constructions in that the interior excitations are not confined within the near-extremal throat. I will end mentioning open problems and future directions.

Prof. A. Chamorro Seminar Room, Theoretical Physics Seminar Room

Wednesday, May 15th, 2024

Time: 11:40 pm