

Abstract Submitted
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Entanglement entropy production in gravitational collapse EUGENIO BIANCHI, Penn State University — After 40 years of active research the question of the fate of information that falls into a black hole is still open. In this talk I discuss recent results that allow us to compute the entanglement entropy production in gravitational collapse. For a solvable model of black hole formation I show that the entanglement entropy of the radiation emitted by the black hole reproduces all the standard thermodynamic results on Hawking radiation. In the second part of the talk I apply these new methods to models of gravitational collapse in which quantum gravity effect avoid the formation of a singularity. In these black hole models there is a trapping horizon but no event horizon: the radiation coming out from the black hole at late times is expected to purify the early radiation so that no information is lost. I discuss some unexpected features of this “purifying” radiation and put new bounds on the time need for the recovery of information that fell into the black hole.

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