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Black hole/string transition in the black hole evaporation

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In this talk, we discuss the black hole/string transition in the black hole evaporation. Susskind proposed that a black hole turns into a highly excited string as one adiabatically decreases the string coupling. Horowitz and Polchinski constructed a model of string bound state which describes the string phase of the black hole/string transition. In the previous work, we extended the Horowitz-Polchinski model by taking the non-linear effect of gravity and found that the black hole phase can also be desribed by the bound state of strings. At low temperatures, the string bound state approximately behaves as a black hole, but the geometry has no event horizon. In this study, we take the effect of the Hawking radiation and introduce the time evolution of the black hole. Our model describes the evaporation of black holes including the transition to strings in the final stages.

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