

GRAVITY AND BLACK HOLES

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PHYSICS COLLOQUIUM

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at 4:10PM in 316 Lewis Lab.

Refreshments at 3:45PM

Beginning with a review of the basic principles of general relativity, which is Einstein's theory of gravitation, we go on to discuss the black holes that describe the endpoint of the gravitational collapse of sufficiently massive bodies. This purely classical picture changes when the effects of quantum mechanics are taken into account. By making semi-classical approximations, more than forty years ago Hawking discovered his celebrated result that black holes are not black, but instead they radiate with a characteristic temperature known as the Hawking temperature. We describe how this led to a puzzle which persists to this day, known as the "information loss paradox." Resolving the puzzle requires reaching a proper understanding of quantum gravity. We outline some of the progress that has been achieved in this direction.

Christopher Pope received his BA degree at the University of Cambridge in 1975, MA in 1979, and his PhD at the University of Cambridge in 1980. He was a Research Fellow at St. John's College, Cambridge from 1979 to 1982. After postdoctoral positions at Imperial College London he moved to USC in 1987, and then to Texas A&M in 1988.