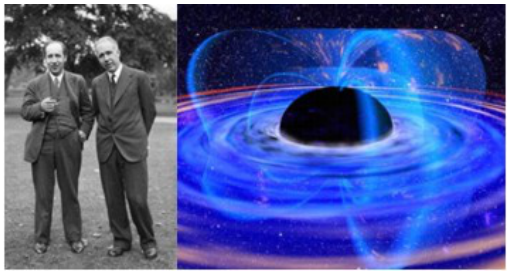

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An Introduction to the Geometry of Black Holes

Monday 7 April 2008 14:15 (1 hour)

In this lecture we will study the Schwarzschild spacetime, which represents a nonrotating black hole in vacuum, from a variety of perspectives. After considering the more intuitive coordinate chart representations of Schwarzschild, we will then focus on Kruskal coordinates which is a global coordinate chart on the whole spacetime. From this introductory material, we will then transistion into a discussion about what the correct, or most geometric, statement of the Penrose Conjecture for black holes should be. Time permiting, we'll prove the Penrose Conjecture in a very special case, discuss white holes as compared to black holes, and define a new notion of horizon, called a generalized apparent horizon, which may be an important notion useful for proving the Penrose Conjecture.

Presenter: BRAY, Hubert (Duke)