

# On the Nature and Mathematics of Black Holes, part I

*Monday, 24 July 2023 09:00 (45 minutes)*

In this short course we will explore various of the fascinating aspects of black holes in four, and more, dimensions. We start with a review of a general Birkhoff theorem in arbitrary dimension and cosmological constant, then discuss the types of black objects that are possible. We will discuss no hair theorems and black hole perturbations, and the fascinating recent developments in black hole thermodynamics. We will then talk about black holes in cosmology, time dependence and finally link to the standard model via instantons and vacuum decay.

**Primary author:** GREGORY, Ruth (King's College London)

**Presenter:** GREGORY, Ruth (King's College London)

**Session Classification:** On the Nature and Mathematics of Black Holes