

Homework 11

Introduction to General Relativity and Gravitation - 2025

Exercise 1

Show explicitly that the energy and the angular momentum of a particle moving in the geodesics of the Kerr metric are given by formulas (2) and (3) from the slides for Lesson 11.

Exercise 2

Show explicitly that the limit on how much can we decrease the angular momentum of a Kerr B-H is given by formula (1) from the same slides.

Exercise 3

Show explicitly that the maximum of energy we can extract from a Kerr B-H is given by formula (17) from the slides.