Research Project Course Departmental Information Sheet

Course (Choose one): PHYS 4310 BPHS 4310

Year and Term: Winter 2022

Student Name: Rosalyn Chan Yoke Ling

Student Number: 216035461

Supervising Professor Name: Saeed Rastgoo

Project Title: Gravitational collapse in the modified regime

This project is concerned with the collapse of matter int to a black hole in a regime where quantum gravity effects are important. The student will study the differential equation associated to this collapse and study the behavior of spacetime near the horizon and near singularity.
Milestones: (1) deriving the effective equations of motion of the black hole, (2) solving these equations numerically, (3) using these equations to study the Kretchmann scalar, expansion scalar and its rate of change in the interior of black hole
Deliverables: (1) Numerical results and plots of the Kretchmann scalar, expansion scalar and its rate of change. (2) A final written report or a paper submitted on arXiv
Grading scheme:
- Milestones (1) to (3) and deliverable (1): 80%
- Deliverable (2): 20%

X rosalyn
Student

X
Professor