CIDMA CENTRO DE I&D EM MATEMÁTICA E APLICAÇÕES
CENTER FOR R&D IN MATHEMATICS AND APPLICATIONS

universidade de aveiro

Gravitational Geometry and Dynamics Group Seminar

Wed., May. 08th, 2024, at 11h00.

Room: Sala Sousa Pinto and **Zoom ID:** 989 6252 0928
(*Password: contact graposo@ua.pt)*

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SpheriCo.jl: Spherical Collapse in Julia

Black hole formation is a physical process extensively studied in classical gravity, leading to exciting discoveries, such as the critical phenomena first numerically uncovered by Choptuik. In semiclassical gravity, when combined with the quantum nature of matter, black holes give rise to additional intriguing phenomena such as Hawking radiation.

SpheriCo.jl is a public Julia package, currently under development, that can perform simulations of a spherically symmetric scalar field in classical and semiclassical gravity. I will discuss the system of equations the code solves, as well as the summation-by-part finite difference operators used for the numerical implementation.

Then, I will show some tests that demonstrate the abilities and shortcomings of the code, and conclude possible future improvements.

More about Gr@v
at: *gravitation.web.ua.pt*

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