

Contributed Talk

Name: Isabel Suárez Fernández

Position: PhD Student

Affiliation: Instituto Superior Técnico / CENTRA

Title: Collapse of axisymmetric Gravitational Waves in vacuum

Abstract: The pseudospectral code BAMPS is used to evolve axisymmetric gravitational waves in vacuum. We consider six different one-parameter families of Brill wave initial data: three prolate and three oblate, of which two of them are centered and the other four are off-centered. With the new Adaptive Mesh Refinement (AMR) feature of the code BAMPS, we can improve on previous results near the threshold of black hole formation [1]. In particular, by leveraging the increased performance and scaling behavior of the code, we can fine tune closer to the critical point between gravitational collapse and dispersion in the centered families and giving new results about the off-centered ones. Time permitting, we will discuss the relevance of our new results in the context of critical collapse beyond spherical symmetry. [1] David Hilditch, Andreas Weyhausen, and Bernd Brügmann, Phys. Rev. D 96, 104051 – Published 29 November 2017