

Critical gravitational collapse with the code bamps

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Critical phenomena emerges as we approach the threshold between gravitational collapse and dispersed fields. We study this phenomena associated to the gravitational field alone, in vacuum, by evolving gravitational waves. The axisymmetry of this setup allows us to verify critical phenomena beyond spherical symmetry. More importantly, widening the variety of initial data we can test the universality of these features. Our pseudo-spectral code bamps, with its new adaptive mesh refinement, has allowed us to tune six different one parameter families of initial data with the same resources that previously permitted us to tune one family. We present our results after evolving three prolate and three oblate, including two centred and four off-centred, families of Brill waves up to the threshold of critical collapse.

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