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The threshold of gravitational collapse in vacuum

Tuesday, September 12, 2023 10:30 AM (1 hour)

Working within the space of smooth solutions of GR and tuning to the threshold of black hole formation, we arrive at extreme spacetimes which are generally expected to contain naked singularities. In the spherical setting such configurations have been accurately studied by numerical work for three decades. This resulted in a beautiful understanding of the threshold of collapse through a mathematical analogy to critical phenomena in statistical physics. Relaxing these symmetry assumptions, the story becomes more challenging numerically and phenomenologically much more complicated. In my talk I will review both the development of the topic and the current state of the art in tackling the problem for gravitational waves.

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