

Simulating Black Holes

A Lecture by Maria Okounkova

Friday, August 17th, 8:00PM

Cahill Center for Astronomy and Astrophysics
California Institute of Technology

Computational physics takes us where pencil and paper calculations often cannot—to the most dynamical, complicated astrophysical scenarios. This includes the merger of black hole binaries, where the final stages of two black holes joining together to become one highly distorts spacetime. Being able to model such a system is important for gravitational wave detection from such binary black hole mergers, but is only possible via simulation—using powerful computers to perform calculations to see what such a system looks like. I will talk about computational physics: what it is, what its capabilities are, and how it's used in studying black holes today. We will go through some simple examples to see what performing a physical simulation actually means. I will also describe the differences and similarities between computational physics simulations and the sort of simulations performed in CGI animation.

Image Credit: Paramount Pictures/Warner Bros.

These are free lectures at a public level followed by guided stargazing with telescopes (weather permitting). All events are held at the Cahill Center for Astronomy and Astrophysics at Caltech. No reservations are needed. Lectures are 30 minutes, stargazing lasts 90 minutes. Stay only as long as you want.

For directions, weather updates, and more information, please visit:

<http://outreach.astro.caltech.edu>