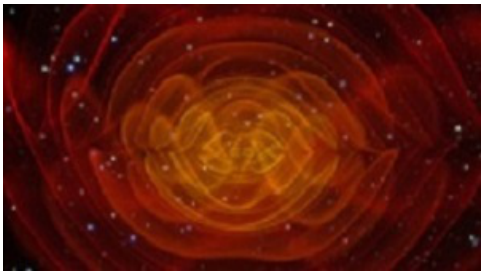

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Progress at second order

Wednesday, 21 June 2017 09:00 (50)

I discuss the status of second-order self-force formulations and computations, which will be necessary for accurate models of EMRIs.

In the first part of the talk, I describe recent progress on the foundations of the theory. A principal feature of the second-order field equations is that the retarded field does not have a distributionally well-defined source, instead having a free boundary value in a region around the small object. This challenge has historically been addressed using a puncture scheme. However, it can also be eliminated entirely with a judicious choice of gauge, which may radically simplify future numerical work.

In the second part of the talk, I describe ongoing work to numerically implement a second-order, two-timescale puncture scheme for quasicircular orbits in Schwarzschild spacetime. This will lead into the talk by Wardell.

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