Abstract Submitted
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The final spin in unbound black hole mergers[1] PABLO LAGUNA, Penn State, MATTHEW WASHIK, Drexel University, RICHARD MATZNER, University of Texas at Austin, DEIRDRE SHOEMAKER, FRANK HERRMANN, IAN HINDER, Penn State — The spin of the final black hole produced by the merger of a binary black hole system is approximately determined by the combination of orbital angular momentum, spins of the coalescing black holes and radiated angular momentum at the point when the binary enters the plunge. In circular or low eccentricity inspirals, numerical simulations have shown that, although there is a substantial amount ($\sim 20\%$) of angular momentum radiated, the spin of the final black hole is dominated by the orbital angular momentum. To further explore the role played by the orbital angular momentum, we present results from *parabolic* and *hyperbolic* encounters. Because the radiated angular momentum for these mergers is significantly lower, we are able to construct initial configurations that yield spin flipping as well as spinning-up of the final black hole significantly different from those in circular orbits.

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