

Abstract Submitted  
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**The Final Spin of a Binary Black-Hole System** KARAN JANI, DEIRDRE SHOEMAKER, Georgia Institute of Technology — The coalescence of a binary black-hole (BBH) results in a space-time described by the Lorentz boosted Kerr metric. The final BH thus purely lies in a 7-dimensional parameter space consisting of the mass, spin and recoil velocity . The initial BBH system however, even in the regime of being a quasi-circular orbit, is described by 14 parameters, namely the two masses, their spins and their momenta. As a one-one map between the initial and final parameter space cannot exist, several attempts have been made in the past to provide an analytical formula that maps a set of initial binary BH parameters to a given value of final mass and final spin. In this study, we test the validity of the most used analytical spin formula listed in Barausse & Rezzolla (2009) using the extensive, 484 simulations of generic BBH configurations, catalog from the Georgia Tech Numerical Relativity group.

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