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**Accurate Models for Astrophysical Black Hole Recoils<sup>1</sup>** YOSEF ZLOCHOWER, CARLOS LOUSTO, Rochester Inst of Tech — When black-hole binaries merge, an intense, asymmetrical burst of radiation can cause the remnant to recoil at thousands of kilometers a second, large enough to eject the remnant black hole out of the host galaxy. The actual recoil will depend on the size and orientation of the black-hole spins and the mass ratio of the binary. Modeling the recoil for this seven dimensional parameters space can be prohibitively expensive. However, careful choices of configurations can be used to model the recoil for a broad class of astrophysically important binaries. Here we describe the results from a large set of new simulations which we use to develop several interpolative formulas for the recoil that are accurate over a broad range of mass ratios and spins.

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