

Abstract Submitted
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Ultrarelativistic unequal-mass black hole collisions¹ EMANUELE BERTI, Univ of Mississippi, ULRICH SPERHAKE, Cambridge University, VITOR CARDOSO, Instituto Superior Tecnico, Lisbon, FRANS PRETORIUS, Princeton University — We study unequal-mass, high-energy head-on collisions of black holes in four dimensions. We show that the fraction of the center-of-mass energy radiated as gravitational waves becomes independent of mass ratio and approximately equal to 13% at large energies. We support this conclusion with calculations using black hole perturbation theory and Smarr’s zero-frequency limit approximation. These results lend strong support to the conjecture that the detailed structure of the colliding objects is irrelevant at high energies.

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