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Simulating binary black hole systems with intermediate mass ratios¹ ERIC HIRSCHMANN, Brigham Young University, MILINDA FERNANDO, University of Utah, DAVID NEILSEN, Brigham Young University, HARI SUNDAR, University of Utah, YOSEF ZLOCHOWER, Rochester Institute of Technology — Binary black hole systems with constituents that have very different masses are a subset of the binary population that, from a computational perspective, are more challenging to simulate than equal or near equal mass binaries. Their resource demands are significant and it is broadly understood that their successful evolution will require particular approaches and methods that are tuned to this region of the parameter space. We combine two such approaches, namely a parallel octree-refined adaptive mesh and a wavelet adaptive multiresolution method to produce the mesh. This highly scalable framework permits the efficient and rapid simulation of such intermediate mass ratio inspirals (IMRIs). We present some results from these efforts that have proven successful in simulating binaries with larger mass ratios.

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