Abstract Submitted
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BlackHoles@Home Status Report[1] ZACH ETIENNE, West Virginia University — BlackHoles@Home fits numerical-relativity-based black hole binary calculations on a consumer-grade desktop computer, enabling gravitational waveform catalogs and follow-ups at unprecedentedly large scales on volunteer computers. It owes its efficiency to a new reference-metric formulation of BSSN in bispherical coordinates. While the original approach (reported last year) was extremely efficient in memory usage, the high gridpoint density near coordinate foci (and correspondingly tiny CFL-limited timestep) made the approach impractically slow by about a factor of 10. We report on improvements to the underlying infrastructure (NRPy+) and advances in our techniques that both maintain the memory efficiency and increase the performance by well over an order of magnitude, enabling BlackHoles@Home to be launched worldwide in the very near future.

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