Abstract Submitted
for the APR13 Meeting of
The American Physical Society

Observing black hole mergers with space-based gravitational wave detectors NEIL CORNISH, ANTOINE KLEIN, Montana State University, RYAN LANG, University of Florida, EMANUELE BERTI, University of Mississippi — The prospect of observing massive black hole mergers throughout the Universe is one of the main science drivers for a future space-based gravitational wave observatory. Following the demise of the NASA-ESA partnership to develop the Laser Interferometer Space Antenna (LISA), both agencies have conducted studies of scaled-back mission architectures that can deliver a good fraction of the LISA science at a lower cost. A key driver in these studies has been the ability to detect and characterize black hole mergers. Here I will describe the studies we conducted to asses the capabilities of different detector designs for inferring the parameters of spinning black hole mergers, and I will highlight some of the interesting new insights we gained when looking at missions with very different orbits than LISA. I will also describe a problem we uncovered when comparing different post-Newtonian models for the black hole waveforms that calls into question existing results about black hole spin measurements for space and ground based detectors.

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Date submitted: 11 Jan 2013 Electronic form version 1.4