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Applying numerical simulation results to LISA JOHN BAKER, BERNARD KELLY, SEAN MCWILLIAMS, JAMES THORPE, NASA-Goddard Space Flight Center — Binary black hole systems are key observational targets of both ground- and space-based gravitational wave observatories. Interpretation of these observations depends on a detailed understanding of the gravitational radiation waveforms predicted by General Relativity. Advances in numerical relativity are leading to an increasingly rich understanding of the strong radiation generated in the final moments of these mergers. This knowledge can now be applied to answer questions of gravitational wave data analysis. Using the Effective-One-Body formalism together with ideas from an implicit rotating source characterization of numerical relativity waveforms, we construct a parameterized analytic waveform model representing the complete gravitational wavetrain. Then using standard data analysis techniques we apply this model toward an improved understanding of how well the Laser Interferometer Space Antenna (LISA) will be able to measure the astrophysical parameters of massive black hole mergers.

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