Toward an analytic model for eccentric waveforms BLAKE MOORE, TRAVIS ROBSON , NICOLAS YUNES, NICHOLAS LOUTREL, Montana State University — The emission of gravitational waves causes the eccentricity of binaries to decay, but there are astrophysical scenarios that suggest that some number of binaries may have non-negligible eccentricities when entering the LIGO sensitivity band. This suggests that accurate and efficient waveform models for eccentric binaries may be needed once gravitational wave detectors reach design sensitivity. I will begin by presenting the number of harmonics needed to detect an eccentric signal and to do parameter estimation faithfully. I will then discuss the stationary phase approximation to represent the frequency domain signal. Lastly, we make use of the approximated signal to conduct Markov Chain Monte Carlo parameter estimation studies.

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