

Abstract Submitted  
for the APR21 Meeting of  
The American Physical Society

**Imprint of Kozai-Lidov Mechanism on Gravitational Waves** ROHIT CHANDRAMOULI, NICOLAS YUNES, University of Illinois at Urbana-Champaign — Gravitational waves emitted by inner binaries in hierarchical triples are interesting astrophysical candidates for space-based detectors like LISA. In the presence of a third body, the inner binary undergoes oscillations in eccentricity and inclination angle due to the Kozai-Lidov (KL) mechanism. In this talk, I will discuss how to construct analytic gravitational waveforms in the Fourier domain, with this effect included. Using multiple-scale analysis, we make use of the separability of timescales in the system to combine the effects of KL oscillations and radiation reaction. The imprint on the waveform, due to this combined evolution, can then be analytically computed in the stationary phase approximation. I will also discuss our analysis of the parameters of the hierarchical triple which can produce a detectable (by LISA) imprint of KL oscillations on the waveform and outline potential implications for gravitational wave data analysis and tests of GR.

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Date submitted: 29 Dec 2020

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