

Abstract Submitted  
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**Gravitational Waveforms from Compact Binary Systems in Einstein-Aether Gravity**<sup>1</sup> FATEMEH TAHERASGHARI, CLIFFORD WILL, University of Florida — Einstein-Aether gravity is an interesting alternative theory to general relativity. This theory has been constrained using solar system and binary pulsar observations, but we want to study strong-field constraints using gravitational waves. We analyze a three-parameter subset of the theory in which the gravitational and electromagnetic wave speeds are the same, as seen in the multimessenger merger GW170817. Our goal is to obtain gravitational waveforms suitable for GW pipelines to a suitably high post-Newtonian (PN) order. We study the PN expansion of Einstein-Aether gravity using direct integration of the relaxed Einstein equations, including the strong-field effects of compact bodies. We will report on the equations of motion of inspiralling compact binaries to 2.5 PN order.

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