

Abstract Submitted  
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**Probing Compactified Extra Dimensions with Gravitational Waves.** SHAMMI TAHURA, YUCHEN DU, DIANA VAMAN, KENT YAGI, Univ of Virginia — One of the many avenues of modifying the four-dimensional general theory of relativity is to introduce extra dimensions. Such modifications are motivated by string theory in order to achieve a quantum theory of gravity. Tabletop experiments and high-energy particle accelerators have stringently constrained such extra dimensions, although the dynamical and strong gravitational field tests have been made possible only with the recent advent of gravitational-wave observations. While large extra dimensions have been constrained with the gravitational-wave observations, the existence of compact extra dimensions is yet to be explored. In this talk, I will discuss how the presence of a compact extra dimension modifies the binding energy of binaries and the luminosity of gravitational waves generated by them, namely the conservative and dissipative corrections to gravitational waveforms. Considering both corrections I will present constraints on compact extra dimensions from existing gravitational-wave events.

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