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**Polarization modes of gravitational waves in quadratic gravity**
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University of Illinois at Urbana Champaign, Illinois — The observation of the in-
spiral and merger of compact binaries by the LIGO-Virgo collaboration has allowed
for new tests of Einstein's theory in the extreme gravity regime, where gravitational
interactions are simultaneously strong, non-linear, and dynamical. Theories beyond
Einstein's can also be constrained by detecting the polarization modes of gravita-
tional waves. In this talk, I will show that dynamical Chern-Simons gravity and
Einstein-dilaton-Gauss-Bonnet gravity cannot be differentiated from general rela-
tivity based on the detection of polarization modes alone. To prove this result, I
will be using the Newman-Penrose method and an irreducible decomposition method
to find that only the tensorial (plus- and cross-polarization) modes can be detected
in both these theories.

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