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Online Plenary — Kent Yagi: Gravitational-Wave Tests of String-Inspired Gravity

Thursday, 19 November 2026 09:30 (1 hour)

Gravitational waves provide a unique window into the strong-field regime of gravity, offering unprecedented opportunities to test general relativity and search for signatures of new physics. In this talk, I will focus on Einstein-dilaton-Gauss-Bonnet gravity, a quadratic modification of general relativity motivated by string theory. I will first discuss the post-Newtonian corrections that arise during the inspiral phase of compact binary coalescences and review current observational constraints obtained from inspiral signals. I will then describe how black hole ringdown frequencies are modified in this theory and the corresponding constraints from ringdown observations. Accurately modeling the merger phase requires numerical relativity simulations, which are computationally expensive and time-consuming. To address this challenge, I will present new approaches for constructing inspiral-merger-ringdown waveforms in Einstein-dilaton-Gauss-Bonnet gravity more efficiently, paving the way for stronger tests of string-inspired modifications to gravity with current and future gravitational-wave observations.