

The Gravitational Wave Stress-Energy (pseudo)-Tensor in Modified Gravity

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The detections of gravitational waves by the advanced LIGO and Virgo detectors have opened up new tests of modified gravity in the strong-field and dynamical, extreme gravity regime. These tests rely sensitively on the phase evolution of the gravitational waves, which is itself controlled by the energy-momentum carried by such waves out of the system. In this talk, I will discuss several methods for finding the gravitational wave stress-energy pseudo-tensor in gravity theories with any combination of scalar, vector, or tensor degrees of freedom. I will then discuss how we applied these methods in General Relativity, Jordan-Fierz-Brans-Dicky theory, and Einstein-Æther theory to find the gravitational wave stress-energy pseudo-tensor and calculate the rate at which energy and linear momentum is carried away from the system.