

Dark Matter and Stars: Multi-Messenger Probes of Dark Matter and Modified Gravity

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Effective Field Theory Approach to Gravitational Radiation From Binary Systems in Massive Scalar-Tensor Theory

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With the rapid advancements in gravitational wave astronomy, performing precision tests of general relativity in the strong field regime become increasingly viable via e.g. observations of the inspiral waveform of binary systems. A natural modification to general relativity consists of coupling an additional scalar degree of freedom to curvature invariants, which generically leads to a fifth force being mediated by this scalar. I will present how an effective field theory can be constructed in order to systematically calculate corrections to the gravitational and scalar waveform generated by binary systems.

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