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Self-force-based merger-ringdown waveforms in scalar-tensor theories of gravity

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Gravitational self-force theory (GSF) has proved to be a viable method of solving the general relativistic 2-body problem for asymmetric binaries, with state-of-the-art GSF inspiral waveforms now exhibiting minimal phase error across all mass ratios smaller than ˜1/10. Recent work has extended these GSF inspiral waveforms to include beyond-GR effects in a broad class of scalar-tensor theories. At the same time, GSF inspiral models have now also been extended to include the final merger and ringdown. In this talk we tie together these two themes by calculating first-principles GSF merger-ringdown waveforms in scalar-tensor gravity.

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