

Abstract Submitted
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Properties of Reduced Basis catalogs for gravitational wave templates¹ CHAD GALLEY, Jet Propulsion Laboratory, California Institute of Technology, SCOTT FIELD, FRANK HERRMANN, JAN HESTHAVEN, EVAN OCHSNER, MANUEL TIGLIO — We discuss properties of gravitational waveform template banks constructed using the Reduced Basis (RB) method. We find that the continuum of gravitational waveforms can be represented by a finite and comparatively compact basis, which implies that the space of inspiral waveforms is effectively finite dimensional. Furthermore, the RB catalogs are robust under variations in the power spectral density of ground-based interferometer detectors, implying that only a single catalog needs to be generated for a given source per detector. We also find that one can construct a single template bank of reduced bases for a given inspiral source for Advanced LIGO which may be used reliably for gravitational wave searches with other ground-based interferometer detectors.

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