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Searches for compact binary inspirals in LIGO data

DREW KEPPEL, Caltech - LIGO, LIGO SCIENTIFIC COLLABORATION — We describe the methodology and subtleties associated with searches for gravitational waves from coalescing compact binary systems, which have been applied to the search for low mass ($M_{total} = 2-35 M_{sun}$) compact binary coalescence waveforms in the LIGO Fifth Science run (S5) first year data. We discuss the astrophysics of coalescing binaries, including the predicted waveforms and source populations. We describe the pipeline employed by the LSC to search for such waveforms in LIGO data, how we suppress false signals originating from instrumental noise, how we evaluate the search efficiency for systems which may include spinning component masses, how we establish confidence in likely detection candidates, and how we formulate Bayesian upper limits on the coalescence rate as a function of total mass of the binary system.

[X] Prefer Oral Session
[ ] Prefer Poster Session

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