Search for Compact Binary Signals Using Coherent WaveBurst[1]

CHRIS PANKOW, University of Florida — Compact binary coalescence (CBC) is one of the most promising sources of gravitational waves. These sources are usually searched for with matched filters which require accurate calculation of the GW waveforms and generation of large template banks. We present a complementary search technique based on burst algorithms. Initially designed for detection of unmodeled bursts, which can span a very large set of waveform morphologies, the search algorithm presented here is constrained for targeted detection of the smaller subset of CBC signals. The constraint is based on the assumption of elliptical polarization. We expect that the algorithm will be sensitive to CBC signals in a wide range of masses, mass ratios, and spin parameters. We also present preliminary studies of the algorithm on test data as well as the sensitivity of the search to different types of simulated waveforms. Also, we compare the performance of the constrained search and the coherent WaveBurst search used for the burst analysis of LIGO data.

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