A comparison of parameterized signal priors for detecting binary black hole mergers MARGARET MILLHOUSE, NEIL CORNISH, Montana State Univ, TYSON LITTENBERG, Northwestern University — In the search for transient gravitational waves, it is believed that modeled template-based searches will be the method of choice for estimating the physical parameters of the gravitational wave producing system. I will discuss an additional method for parameter estimation from burst searches, without having to use a full waveform template. The BayesWave algorithm uses Bayesian inference with a wavelet reconstruction of the gravitational wave signal, and allows for the implementation of a parameterized signal prior which we can use to extract physical quantities such as masses and spins. I will compare two different approaches to developing such a prior, both based on the time-frequency evolution of a binary black hole merger. The first method utilizes a signal prior that favors placing the wavelets along the time-frequency track, while the second method compares the time-frequency track to the time-frequency evolution reconstructed from the waveform produced by BayesWave.

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