

Abstract Submitted  
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**Bayesian Inference for Gravitational Wave Transients and Instrument Glitches: Applications** TYSON LITTENBERG, CIERA/Northwestern University, NEIL CORNISH, Montana State University, VICKY KALOGERA, CIERA/Northwestern University — Optimally identifying and characterizing gravitational wave signals requires accurate models for both the signal and the noise. We have developed a pair of tools, BayesLine and BayesWave, that work together to reliably extract signals from either compact binary mergers or un-modeled bursts of gravitational waves from the non-stationary and non-Gaussian noise of the LIGO instruments. BayesLine dynamically estimates the power spectrum of the Gaussian component of the noise, including the many line features, while BayesWave models noise transients (glitches) and, in the absence of template waveforms, gravitational wave bursts. The effectiveness of this novel approach is demonstrated on data from LIGO's sixth science run.

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