

Abstract Submitted
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Locating

Gravitational

Waves with BayesWave BELINDA CHEESEBORO, Andrews University, BELINDA CHEESEBORO COLLABORATION¹ — LIGO is the Laser Interferometer Gravitational Wave Observatory. Its mission is to detect gravitational waves that could be caused by the interaction of massive gravitating bodies such as coalescing black holes, in-spiraling neutron stars, etc. BayesWave is an algorithm that can analyze possible gravitational wave event data and determine the properties of candidate events such as sky location. This algorithm uses a combination of Bayesian probability theory and the Reverse Jump Markov Chain Monte Carlo (RJMcMC) method to accomplish this goal. BayesWave is able to simultaneously model the gravitational wave signal and the noise by using multi-component models. It uses the RJMcMC to simultaneously perform model selection and fully sample the posterior, to estimate model parameters. This study applies BayesWave to mock events in order to measure its efficacy and compare it with other parameter estimation methods.

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