Abstract Submitted for the MAS15 Meeting of The American Physical Society

Using BayesWave to Approximate Eccentric Black-Hole Binary Gravitational Waves BELINDA D. CHEESEBORO, SEAN T. MCWILLIAMS, West Virginia Univ, LIGO COLLABORATION — The mission of the Advanced Laser Interferometer Gravitational-Wave Observatory (LIGO) is to detect gravitational waves that could be caused by the interaction of massive gravitating bodies such as coalescing black holes and neutron stars. BayesWave is an algorithm that can analyze possible gravitational wave event data and determine the likelihood that the event strain contains mostly Gaussian noise, signal, or glitches. The algorithm accomplishes this by using multi-component models and incorporating the Reverse Jump Markov chain Monte Carlo (RJMcMC) to simultaneously perform model selection and fully sample the posterior likelihood to estimate model parameters. We will describe previous investigations using BayesWave, and discuss future work using BayesWave in a new way to detect gravitational wave signals from eccentric black-hole binary sources.

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Date submitted: 01 Oct 2015

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