Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Characterizing High Mass Binary Black Hole Signals with RIFT: Applications of Cutting Edge Parameter Estimation Techniques[1]
RICHARD UDALL, LIGO Laboratory, Caltech, KARAN JANI, Vanderbilt University, JACOB LANGE, University of Texas at Austin, BHAVESH KHAMESRA, HYUN CHOI, GRIHITH MANCHANDA, JAMES CLARK, Georgia Institute of Technology, RICHARD O'SHAUGHNESSY, Rochester Institute of Technology, DEIRDRE SHOEMAKER, University of Texas at Austin, LAURA CADONATI, Georgia Institute of Technology, KELLY HOLLEY-BOCKELMANN, Vanderbilt University, PABLO LAGUNA, University of Texas at Austin — The coalescences of exceptionally massive binaries such as GW190521 and GW170502 are among the most interesting events observable by ground based gravitational wave observatories in the LVK network. In particular, it is known that higher order modes and spin precession are more likely to affect parameter estimation for these systems, and that they are among the best test cases for numerical relativity and numerical relativity derived surrogate models. RIFT (Rapid parameter Inference on gravitational wave sources via iterative Fitting) is a parameter estimation algorithm which allows rapid exploration of the parameter space and computation of likelihoods for competing models, making it well suited to this application. I will discuss the use of these techniques with this exciting class of events, including their application to real data for the events mentioned above, as well as investigations into the systematics of parameter estimation on these systems.

[1]NSFPHY 1809572, NSFPHY 1806580

Richard Udall
LIGO Laboratory, Caltech

Date submitted: 08 Jan 2021 Electronic form version 1.4