

Abstract Submitted
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Reconstructing gravitational wave source parameters via direct comparisons to numerical relativity I: Method¹ JACOB LANGE, RICHARD O'SHAUGHNESSY, JAMES HEALY, CARLOS LOUSTO, Rochester Inst of Tech, DEIRDRE SHOEMAKER, Georgia Inst of Tech, GEOFFREY LOVELACE, California State U, Fullerton, MARK SCHEEL, California Inst of Tech, SERGUEI OS-SOKINE, U of Toronto — In this talk, we describe a procedure to reconstruct the parameters of sufficiently massive coalescing compact binaries via direct comparison with numerical relativity simulations. For sufficiently massive sources, existing numerical relativity simulations are long enough to cover the observationally accessible part of the signal. Due to the signal's brevity, the posterior parameter distribution it implies is broad, simple, and easily reconstructed from information gained by comparing to only the sparse sample of existing numerical relativity simulations. We describe how followup simulations can corroborate and improve our understanding of a detected source. Since our method can include all physics provided by full numerical relativity simulations of coalescing binaries, it provides a valuable complement to alternative techniques which employ approximations to reconstruct source parameters.

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