

Abstract Submitted  
for the APR17 Meeting of  
The American Physical Society

**Development of accurate waveform models for eccentric compact binaries with numerical relativity simulations** ELIU HUERTA, BHANU AGARWAL, NCSA University of Illinois at Urbana-Champaign, ALVIN CHUA, University of Cambridge, DANIEL GEORGE, ROLAND HAAS, NCSA University of Illinois at Urbana-Champaign, IAN HINDER, Albert Einstein Institute, PRAYUSH KUMAR, CITA, University of Toronto, CHRISTOPHER MOORE, HARALD PFEIFFER, University of Cambridge — We recently constructed an inspiral-merger-ringdown (IMR) waveform model to describe the dynamical evolution of compact binaries on eccentric orbits (<https://arxiv.org/abs/1609.05933>), and used this model to constrain the eccentricity with which the gravitational wave transients currently detected by LIGO could be effectively recovered with banks of quasi-circular templates. We now present the second generation of this model, which is calibrated using a large catalog of eccentric numerical relativity simulations. We discuss the new features of this model, and show that its enhanced accuracy makes it a powerful tool to detect eccentric signals with LIGO.

Eliu Huerta  
NCSA University of Illinois at Urbana-Champaign

Date submitted: 28 Oct 2016

Electronic form version 1.4