Abstract Submitted
for the APR16 Meeting of
The American Physical Society

Comparing numerical and analytic approximate gravitational waveforms NOUSHA AFSHARI, GEOFFREY LOVELACE , Cal State Univ-Fullerton, SXS COLLABORATION — A direct observation of gravitational waves will test Einstein's theory of general relativity under the most extreme conditions. The Laser Interferometer Gravitational-Wave Observatory, or LIGO, began searching for gravitational waves in September 2015 with three times the sensitivity of initial LIGO. To help Advanced LIGO detect as many gravitational waves as possible, a major research effort is underway to accurately predict the expected waves. In this poster, I will explore how the gravitational waveform produced by a long binary-black-hole inspiral, merger, and ringdown is affected by how fast the larger black hole spins. In particular, I will present results from simulations of merging black holes, completed using the Spectral Einstein Code (black-holes.org/SpEC.html), including some new, long simulations designed to mimic black hole-neutron star mergers. I will present comparisons of the numerical waveforms with analytic approximations.

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Date submitted: 08 Jan 2016 Electronic form version 1.4