

Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Calculating apparent-horizon quantities with SpECTRE, a next-generation numerical relativity code.¹ MARLO MORALES, GEOFFREY LOVELACE, California State University, Fullerton, SIMULATING EXTREME SPACETIMES - SXS COLLABORATION — SpECTRE is a next-generation numerical-relativity code (currently under development) that will calculate the gravitational waves emitted by colliding black holes and neutron stars with unprecedented accuracy, by using novel techniques that enable it to scale to hundreds of thousands of compute cores. These high-accuracy calculations will help scientists interpret observations from next-generation gravitational-wave detectors. I will discuss the completion of SpECTRE's computational infrastructure to measure the properties of black hole's horizons, such as the black hole's masses and spin angular momenta, which are especially important for connecting the calculations to observations. Specifically, I will present results assessing the accuracy that SpECTRE is able to achieve, and I will compare the results to those from the Spectral Einstein Code (SpEC), a current-generation numerical relativity code.

¹Nicholas and Lee Begovich Center for Gravitational-Wave Physics and Astronomy

Marlo Morales
California State University, Fullerton

Date submitted: 07 Jan 2021

Electronic form version 1.4