

Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Testing Compact Binary Waveforms Using Memory and Angular Momentum¹ NEEV KHERA, Pennsylvania State University, BADRI KRISHNAN, Max Planck Institute for Gravitational Physics (Albert Einstein Institute), ABHAY ASHTEKAR, Pennsylvania State University — Accurate modelling of gravitational waves from compact binaries is essential for their detection and parameter estimation. The accuracy is generally measured by comparison to Numerical Relativity (NR). We present supplementary methods to test for consistency with exact General Relativity using balance laws: an infinite tower of supermomentum balance laws and the angular momentum balance law. These methods do not rely on NR and can thus be used all across parameter space. The supermomentum balance law cannot be applied directly, however, since currently the memory effect is not modeled. Instead we use it indirectly to first *infer* the memory and then compare the systematic differences of the inferred memory to their statistical uncertainties. We apply these methods to some recent models and binary black hole events.

¹This work was supported by the NSF grants PHY1505411 and PHY-1806356 and the Eberly Chair funds of Penn State

Neev Khera
Pennsylvania State University

Date submitted: 11 Jan 2021

Electronic form version 1.4