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Numerical Relativity meets Data Analysis

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Gravitational waveforms (GW) from coalescing black hole binaries obtained by Numerical Relativity (NR) play a crucial role in the construction and validation of waveform models used as templates in GW matched filter searches and parameter estimation. In previous efforts, notably the NINJA and NINJA-2 collaborations, NR groups and data analysts worked closely together to use NR waveforms as mock GW signals to test the search and parameter estimation pipelines employed by LIGO. Recently, however, NR groups have been able to simulate hundreds of different binary black holes systems. It is desirable to directly use these waveforms in GW data analysis, for example to assess systematic errors in waveform models, to test general relativity or to appraise the limitations of aligned-spin searches among many other applications. In this talk, I will introduce recent developments that aim to fully integrate NR waveforms into the data analysis pipelines through a standardized interface. I will highlight a number of select applications for this new infrastructure.