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Black Hole-Neutron Star Mergers for 10 Solar Mass Black Holes FRANCOIS FOUCART, Canadian Institute for Theoretical Astrophysics, MATTHEW DUEZ, Washington State University, LAWRENCE KIDDER, Cornell University, BELA SZILAGYI, MARK SCHEEL, Caltech, SAUL TEUKOLSKY, Cornell University, SXS COLLABORATION — Black hole-neutron star (BHNS) mergers are expected to be observed by gravitational wave detectors within the next few years, and are also thought to be promising candidates as short gamma-ray burst progenitors. The parameters of BHNS binaries which affect the dynamics of the merger the most (black hole mass and spin, nuclear equation of state) are highly uncertain. For the black hole mass, population synthesis models indicate that fairly massive black holes ($> 10M_\odot$) are probably the norm in such systems. Numerical simulations of BHNS mergers in general relativity have however been focused on lower mass black holes ($\sim 3-7M_\odot$). I will present recent numerical simulations of BHNS mergers for $10M_\odot$ black holes, and show how they differ from lower mass systems in the emitted gravitational waveform as well as in their ability to form the massive discs required to power short gamma-ray bursts.

Francois Foucart
Canadian Institute for Theoretical Astrophysics

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