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Simulations of Eccentric Black Hole-Neutron Star Mergers in Full GR BRANSON STEPHENS, University of Wisconsin-Milwaukee, WILLIAM EAST, FRANS PRETORIUS, Princeton University — Within the next few years, gravitational waves from merging black holes (BHs) and neutron stars (NSs) may be directly detected, making a thorough theoretical understanding of such systems a high priority. BH-NS mergers may also produce short duration gamma-ray bursts (SGRBs), whose origin represents an important unsolved problem in astrophysics. SGRB afterglow observations along with theoretical studies of globular cluster evolution suggest that some of these events arise from dynamically formed BH-NS binaries, which are likely to merge with non-negligible eccentricity. Motivated by these considerations, we perform simulations of BH-NS binaries with varying eccentricity to explore possible channels of disk formation and evolution following BH-NS mergers, and to look for signatures of the matter dynamics in the gravitational waveforms.

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