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Induced Bias in Recovery of Spinning Neutron Star Binaries with Non-spinning Waveforms RACHAEL HUXFORD, Towson Univ, CHRIS VAN DEN BROECK, ARCHISMAN GHOSH, Nikhef — The recent detection of the binary neutron star merger GW170817 has conclusively demonstrated the ability of probing with gravitational waves the elusive neutron star equation of state. It is expected that the parameters like tidal deformabilities which depend on the neutron star equation of state will be much better measured with future observations. In this work, we focus on the ability to accurately estimate tidal deformabilities of spinning waveforms using non-spinning waveform models. We compare the match of post-Newtonian waveforms with tidal effects and spins with their non-spinning counterparts. We find that the presence of spin drastically decreases the match between the two waveforms with increasing spin magnitudes. We repeat the study with a range of spin values in simulated waveforms. Tidal deformabilities are incorrectly estimated for higher spin magnitudes. In conclusion, our analysis shows that the use of non-spinning waveform models renders the estimation of tidal deformabilities highly inaccurate.

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