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Systematic parameter errors in binary neutron star inspirals: effects of spin, tides, and high post-Newtonian order terms MARC FAVATA, Montclair State University — The coalescence of two neutron stars is one of the most important sources for LIGO, Virgo, and other advanced ground-based detectors. Based on a post-Newtonian description of the inspiralling binary, it is generally believed that we will be able to precisely measure the masses of the two neutron stars, and potentially measure (with much less precision) the Love numbers characterizing their tidal distortion (and encoding information about the neutron star radius and equation of state). However, this belief ignores the effects of uncertainties in our knowledge of the waveform. These uncertainties (e.g., the finite order to which we know the post-Newtonian series) can cause a significant systematic offset in the values of the parameters that we extract. I will discuss calculations of these systematic parameter errors for a variety of scenarios.

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