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Using the measurability of spin to test the cosmic censorship conjecture[1] MADELINE WADE, JOLIEN CREIGHTON, UW - Milwaukee — In anticipation of the new era of gravitational wave detectors, it is especially important to develop methods for gaining information about astrophysical systems from gravitational wave signals. We have been working on developing a method for testing the cosmic censorship conjecture using the inspiral portion of the compact binary coalescence gravitational waveform. The cosmic censorship conjecture states that any massive body undergoing complete gravitational collapse must result in a singularity concealed by an event horizon, meaning this singularity will not be visible to a distant observer. The method we are developing will allow us to say whether detected systems are consistent with the cosmic censorship conjecture, within the context of the Kerr geometry, or are more exotic horizon-less systems. The Kerr geometry places an upper limit on the allowed spin of a compact object with a horizon. We use parameter estimation techniques to calculate the measurability of a spin and mass parameter appearing in the gravitational waveform. The Kerr limit on spin along with a physical limit on the mass parameter allows us to say whether a system is consistent with a Kerr black hole within our calculated measurement error.

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