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Masses from EM observations of Compact Binaries

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Binary star systems provide us with the best opportunities to measure the masses of neutron stars and black holes, whether it is through the “traditional” way of measuring the EM radiation of one or both components or through measuring the gravitational waves from merging systems. In this presentation I will mainly discuss how the masses of neutron stars and black holes are measured using optical observations of (mostly) X-ray binaries and the key systematic errors that currently limit the accuracy of the results. The sample size of black holes in X-ray binaries with mass measurements is currently small, and this limits the conclusions that one can draw about the details of supernovae explosions, the formation mechanisms of X-ray binaries, and the populations of the highest mass stars. Given the need to greatly increase the sample size of well-studied black holes, I will discuss the potential that ongoing and planned optical and radio surveys have to build larger samples of well-measured black holes.