Deep learning for parameter estimation of eccentric binary black hole mergers EAMONN O'SHEA, Cornell University — Current LIGO/Virgo search and parameter estimation pipelines target gravitational wave emission from quasicircular binary black hole systems. However, simulations of dense stellar environments suggest that about 10% of binary black holes will enter the LIGO/Virgo band which eccentricity greater than 0.1, and could be missed or mischaracterized by these pipelines. We propose the use of deep learning techniques, already successfully applied to the quasicircular case by several groups, to the problem of determining the source parameters of eccentric binaries. We will demonstrate how our machine learning pipeline leads to models that can perform simple inference of eccentric source parameters, and compare the results of our models with established parameter estimation techniques.

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