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Un-modeled search for stellar mass binary black hole mergers in LIGO-VIRGO interferometers

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Detections of stellar mass binary black holes (BBHs) system in the observing run of LIGO and VIRGO interferometers has started an exciting new era of black hole astrophysics. For understanding the formation channels of BBH a detected population of BBH will be required, with various parameters like masses, spins and orbital properties like eccentricity and precession. Hence, there is a strong motivation to search for BBH systems in a large parameter space. Some of the possible formation channels allow BBH to have eccentric and/or precessing orbits, waveform models for such system are not yet available preventing the modelled search. Hence an un-modeled targeted towards detecting BBH will be important if not just necessary to detect such sources until reliable and accurate waveform models are available.

Here we outline the un-modeled search on LIGO-Virgo data, which targets BBH and employs the "coherent WaveBurst" algorithm. We discuss the sensitivity of this search for the case of BBH with eccentric orbits and possible astrophysical implications

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