

Abstract Submitted
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A fast sky scanner for compact binary sources of gravitational waves WILLIAM DUPREE, SUKANTA BOSE, Washington State Univ — We develop a geometric optimization method to speed up the coherent search in the sky for compact binary sources of gravitational waves (GWs) in multi-detector data. Currently, a metric-based sky grid is used over the region of interest in the sky to perform this search. This method, however, does not use the fact that the coherent statistic is a convex function in the sky, which allows reduction in the number of compute operations by more than a factor 3. We demonstrate this computational efficiency in simulated data for the three-detector network comprising LIGO-Hanford, LIGO-Livingston and Virgo. Our method may help speed up electromagnetic follow-ups of GW candidates.

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