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Multi-baseline signal consistency tests in searches for gravitational-wave signals in LIGO and Virgo detectors from compact binary coalescences THILINA DAYANGA, SUKANTA BOSE, Washington State University, Pullman — The non-Gaussian and non-stationary nature of real data is known to hurt the performance of gravitational wave signal searches. Incorporating signal-based discriminators that exploit the differences between the time-frequency structure of signals and noise artifacts has been shown to improve their performance for modeled sources. However, the power of these discriminators varies across the signal parameter space. Here we study how the performance of the null-stream statistic for detecting compact binary coalescence signals in a multi-baseline network varies as a function of the sky. We report results on simulated Gaussian data with LIGO sensitivities, with and without signal injections. We compare them with those expected theoretically. These results serve as benchmarks for subsequent studies in real data, and can help in formulating data-analysis strategies for reducing the gap in performance of search pipelines in real and Gaussian data.

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