

Title:

AN EXTENDED ALL-SKY SEARCH FOR CONTINUOUS GRAVITATIONAL WAVES WITH THE FREQUENCYHOUGH PIPELINE

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Abstract:

We describe some novel aspects of the FrequencyHough pipeline [1-3] for all-sky searches for continuous gravitational waves emitted by isolated spinning neutron stars, and their first application to the analysis of LIGO O2 data. In particular, we present a new semi-coherent follow-up method, which was applied to the sub-threshold candidates found by a LIGO-Virgo analysis of O2 data [4]. Preliminary results from a FrequencyHough all-sky search of O2 data extended over the frequency range 1000 Hz to 2048 Hz, not previously covered by this analysis, are also shown. Finally, the astrophysical reach of the new search and prospects for further improvements are discussed.

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[4] The LIGO Scientific Collaboration, the Virgo Collaboration, A. Piskarski, arxiv:1903.01901