

A directed search of continuous wave signals from the Galactic center in Advanced LIGO's second observing run

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Abstract

In this work we present the preliminary results of a search for continuous gravitational waves from the Galactic center using LIGO O2 data. The search uses the Band-Sampled-Data directed search pipeline, which allows a semi-coherent wide-parameter-space search, exploiting the robustness of the FrequencyHough transform algorithm, to be performed. The search targets signals emitted by isolated spinning neutron stars, located within the few inner parsecs of the Galactic center, and covers frequencies between 10 Hz and 700 Hz and a spin-down range from -1.8×10^{-9} Hz/s to 3.7×10^{-11} Hz/s.