

Rapid Identification of continuous gravitational-wave signals

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Continuous gravitational waves (CWs) from asymmetric spinning neutron stars are among the most interesting, although still undetected, targets of the Advanced LIGO-Virgo detectors. The search for this class of signals is difficult due to their expected weakness, and can be very computationally expensive when the source parameters are not known.

The stochastic group uses fast and consolidated cross-correlation techniques to search for either a stochastic background of gravitational waves (SGWB) or persistent gravitational waves in specific directions. Recent investigations have shown that stochastic directional searches have the ability to detect CWs as well, with less sensitivity than CWs searches, but with low computing requirements.

We present a joint SGWB-CW pipeline chain that uses the robustness of SGWB cross-correlation algorithms to quickly identify CW signals, and the accuracy of CW matched-filtering-based codes to properly follow up interesting CW candidates.

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