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A Coherent Directed Search for Continuous Gravitational Waves from Supernova Remnants in the LIGO O3 Data Set JONATHAN WANG, Univ of Michigan - Ann Arbor, LIGO SCIENTIFIC COLLABORATION AND VIRGO COLLABORATION COLLABORATION — The LIGO Scientific Collaboration and Virgo Collaboration search for gravitational waves from diverse astrophysical sources. These include fast-spinning neutron stars which possess a non-axisymmetry about their rotation axes, and consequently produce long-lived, nearly monochromatic gravitational waves, or continuous waves. Search methods used for detecting continuous waves depend on the prior information known about the source. Here we describe a templated search in O3 LIGO data, using the coherent F-statistic, for continuous waves from young supernova remnants. For this type of search, the source location is precisely known, but the signal frequency and its time derivatives are unknown. The status of the search and its characteristic parameters will be presented, along with validation tests of the method.

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