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Searching for Neutrino Counterparts to Gravitational Wave Events from LIGO-Virgo's O1, O2, and O3 Observing Runs

The discovery of high-energy astrophysical neutrinos by IceCube in 2013 and of gravitational waves by LIGO in 2015 have enabled a new era of multi-messenger astronomy. Gravitational waves can identify the merging of compact objects such as neutron stars and black holes. These compact mergers, especially neutron star mergers, are potential neutrino sources. With the completion of LIGO-Virgo's O3 observing run, there are now 67 gravitational wave candidates which have been reported. We present an analysis searching for neutrinos from each of these gravitational wave candidates using an unbinned maximum likelihood approach.

Mini-abstract

IceCube search for high-energy neutrino emission from compact binary mergers reported by LIGO_Virgo.

Experiment/Collaboration

IceCube Collaboration

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