

Abstract Submitted
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The search for astrophysical neutrinos from gravitational wave sources in real time with IceCube JUSTIN VANDENBROUCKE, University of Wisconsin - Madison, RAAMIS HUSSAIN, ALEX PIZZUTO, University of Wisconsin - Madison, ICECUBE COLLABORATION — An electromagnetic counterpart was identified for the first binary neutron star merger detected in gravitational waves (GW 170817) , and a gamma-ray blazar (TXS 0506+056) was identified in coincidence with astrophysical neutrinos. The search is on for the third leg of the multi-messenger triangle: a possible neutrino counterpart to gravitational waves. The IceCube Neutrino Observatory responds rapidly to LIGO/Virgo Open Public Alerts by searching for neutrinos coincident in time and direction with gravitational wave alerts. Detection of a neutrino in coincidence with a gravitational wave source would revolutionize our understanding of both gravitational wave progenitors and astrophysical neutrinos. Doing so in real time would furthermore provide a localization region orders of magnitude smaller than typical gravitational wave regions, in order to quickly search for electromagnetic counterparts. We report results from LIGO/Virgo observing runs O1 and O2 as well as real-time results from O3 to date.

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