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Follow-up of Gravitational Wave events with Super-Kamiokande

The Super-Kamiokande detector is a 50-kton water tank instrumented with $\sim$ 13k photomultipliers, running since 1996. It is sensitive to neutrinos with energies ranging from 4.5 MeV to several TeV. Except for supernova bursts, it is difficult to use Super-Kamiokande as an independent astrophysical trigger as its data are dominated by atmospheric neutrinos in this energy range. However, it can be used to search for neutrino events in time and spatial coincidence with various external triggers.

We developed a framework for the follow-up of gravitational wave alerts. We searched for neutrinos in a 1000 seconds time window centered on alert time. Results using LIGO/Virgo O3 datasets will be presented, as well as the plans of future realtime public release for O4 and beyond.

Mini-abstract

We looked for neutrinos in Super-Kamiokande in coincidence with Gravitational Wave signals.

Experiment/Collaboration

Super-Kamiokande

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