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## Search For Electron-Antineutrinos Associated With Gravitational-Wave Events GW150914, GW151012, GW151226, GW170104, GW170608, GW170814, and GW170817 at Daya Bay

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Providing a possible connection between neutrino emission and gravitational-wave (GW) bursts is important to our understanding of the physical processes that occur when black holes or neutron stars merge. In the Daya Bay experiment, using the data collected from December 2011 to August 2017, a search has been performed for electron-antineutrino signals coinciding with detected GW events, including GW150914, GW151012, GW151226, GW170104, GW170608, GW170814, and GW170817. We used three time windows of  $\pm 10$  s,  $\pm 500$  s, and  $\pm 1000$  s relative to the occurrence of the GW events, and a neutrino energy range of 1.8 to 100 MeV to search for correlated neutrino candidates. The detected electron-antineutrino candidates are consistent with the expected background rates for all the three time windows. Assuming monochromatic spectra, we found upper limits (90% confidence level) on electron-antineutrino fluence of  $(1.13 - 2.44) \times 10^{11} \text{ cm}^{-2}$  at 5 MeV to  $8.0 \times 10^7 \text{ cm}^{-2}$  at 100 MeV for the three time windows. Under the assumption of a Fermi-Dirac spectrum, the upper limits were found to be  $(5.4 - 7.0) \times 10^9 \text{ cm}^{-2}$  for the three time windows.

### In-person participation

Yes

**Primary author:** CHEN, Huiyou (Tsinghua University)**Presenter:** CHEN, Huiyou (Tsinghua University)**Session Classification:** Poster Session**Track Classification:** Neutrino Physics