

A search for low energy neutrinos in correlation with gravitational wave events GW150914, GW151226 and GW170104 with the Borexino detector

This work presents a search for low-energy neutrino signal in Borexino detector in coincidence with the gravitational wave (GW) events GW150914, GW151226 and GW170104. Correlated neutrino events were searched with visible energies greater than 250-keV within a time window of ± 500 -s centered around the GW detection time. A total of five candidates were found for all three GW events combined. The number of events found is consistent with the expected number of solar neutrino and background events. As a result, we have obtained the best current upper limits on the GW event neutrino fluence of all flavors (ν_e, ν_μ, ν_τ) in the neutrino energy range (0.5 – 5.0) MeV.

Authorship annotation

on behalf of the Borexino collaboration

Session and Location

Wednesday Session, Poster Wall #189 (Ballroom)

Poster included in proceedings:

yes

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Track Classification: Poster (not participating in poster prize competition)