

Search for low-energy Borexino's signals correlated with gamma-ray bursts, solar flares and gravitational wave events.

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The results of a low-energy neutrino search with the Borexino detector in coincidence with gamma-ray bursts (GRB), solar flares (SF) and gravitational wave (GW) events are presented. The correlated events with energies greater than 0.25 (1.0) MeV, positioned inside the detector fiducial volume and not identified as alpha-particles or fast cosmogenic decays (neutrino-like events) were searched within various time windows centered around the GRB or GW detection time. The events correlated with SF were searched in the time window corresponding to SF duration. All count rates obtained are in good statistical agreement with the expected count rate of natural, cosmogenic and neutrino backgrounds in the detector. As a result, we have obtained the best current upper limits on all flavor neutrino fluences associated with these astrophysical sources for neutrino energy below 5-7 MeV. The obtained limits allow to exclude the solar neutrino explanation of the anomaly of the run 117 in the Homestake River neutrino experiment.

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