

Supernova triggering and signals combination for the NOvA detectors

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NOvA experiment uses two segmented liquid scintillator detectors, designed to study neutrino oscillations in 2 GeV neutrino beam. However, these detectors can be used to detect neutrinos from the core collapse supernova. NOvA far detector is sensitive to the SN up to 12 kpc distance with false alarm rate of 1/week. However, using the combination of signal significance from two detectors, the sensitivity range can be extended.

We present the online system, which combines the supernova significance from NOvA detectors in real time, calculating the resulting significance every 5ms.

This system could be used for a wider set of detectors and experiments. By construction, this system has a fixed background distribution of the combined significance, independent of the number of clients contributing to the system. This makes the false alarm rate very stable.

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