

# NuFact 2026 - The 27th International Workshop on Neutrinos from Accelerators



Contribution ID: 82

Type: **Oral contribution**

## Core-Collapse Supernova Neutrino Monitoring System in JUNO

The Jiangmen Underground Neutrino Observatory (JUNO) is a 20-kiloton liquid scintillator detector with excellent sensitivity to detect neutrinos from the next Core-Collapse Supernova (CCSN). The real-time CCSN monitoring system of JUNO is designed to provide fast and reliable alerts by tracking the increasing event rate of supernova burst neutrinos and pre-supernova neutrinos.

The monitoring framework consists of a prompt monitor at the electronics stage, an online monitor at the data acquisition (DAQ) level, and a multi-messenger monitor based on low-threshold triggers. This configuration ensures second-level alert generation while maintaining full coverage of the Milky Way, with a false-alert rate kept below 1 per month.

Upon detecting an alert, the system will record data in triggerless mode, and a quick analysis is performed to issue fast alerts for a multi-messenger observation of CCSN events. For this purpose, the monitoring system is connected to the SuperNova Early Warning System (SNEWS 2.0).

This talk will present the implementation and current operational status of the CCSN monitoring system, as well as evaluate its alert performance based on simulation studies.

**Primary author:** GUPTA, Aman (Institute of High Energy Physics (IHEP), Beijing)

**Presenter:** GUPTA, Aman (Institute of High Energy Physics (IHEP), Beijing)

**Track Classification:** WG6: Detector Physics