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SuperNova Early Warning System v2.0

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In the early stages of the core-collapse supernova a prominent amount of neutrinos is emitted in a short burst on a ˜10s time scale. Since the neutrinos can escape the medium of the collapsing star without interaction, such signal can be detected by the neutrino experiments several hours before the observable optical signals.

SuperNova Early Warning System (SNEWS) is an international network of neutrino experiments, aiming at the real-time search for a supernova neutrino signal for providing the early warning of galactic supernova. This system has been operating since 1998, providing an automatic server in a simple coincidence mode sending an alert when two detectors register an excess of events within a certain time window.

We report the status of an ongoing major upgrade of the SNEWS system, which includes studying possible neutrino signals, applying more advanced coincidence techniques, accounting for directional information and a search for pre-supernova neutrino signal.

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