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SuperK-SN

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The detection of SN burst neutrinos from a nearby/Galactic core-collapse supernova (SN) can provide an early warning to the multi-messenger astronomy community. As the world's largest water-Cherenkov detector, Super-Kamiokande (SK) maintains an independent SN alert system, "SNWatch", and also contributes to SNEWS. Recent upgrades to the SK detector and SNWatch have increased the capabilities and speed of SN burst detection and added a new automated alert on GCN. As well, SK has the unique capability to independently reconstruct an accurate SN pointing direction. This system was also upgraded with significant improvements in speed and accuracy. This work has led to significant reduction in SN alert latency with improved pointing information. These advances improve the opportunity for multi-messenger astronomers to detect the initial SBO radiation in the event of the next galactic supernova.

In this talk I will describe the SN burst neutrino detection and direction reconstruction at SK and the recent upgrades to the alert system. I will also open the discussion of how these improvements might impact SN alert response plans for multi-messenger observers.

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Classification de Session: Wavelengths and messengers