

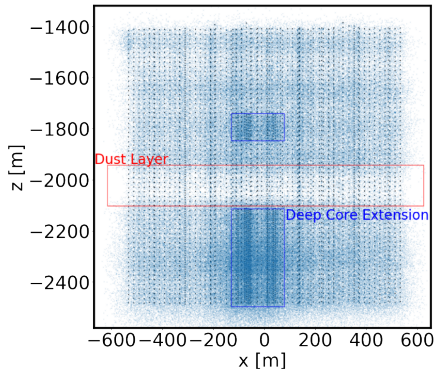
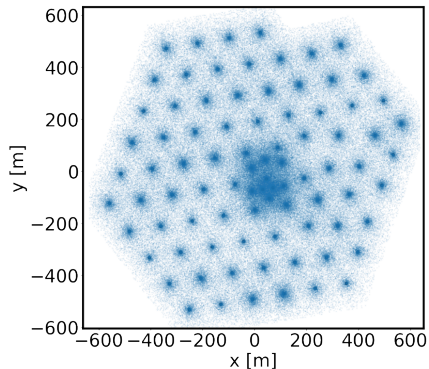
AN END-TO-END TEST OF THE SENSITIVITY OF ICECUBE TO THE NEUTRINO BURST FROM A CORE-COLLAPSE SUPERNOVA

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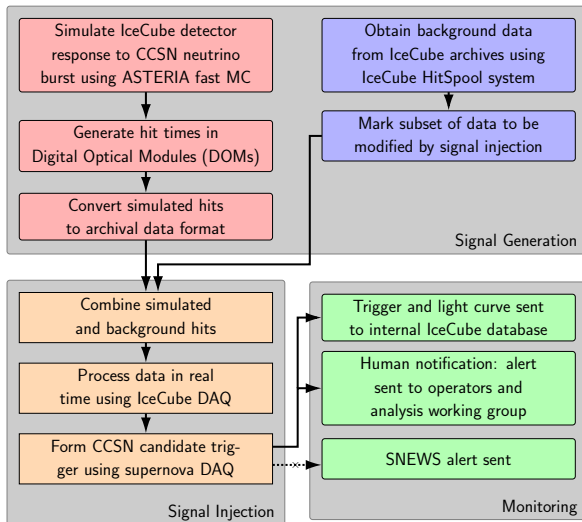
July 16th, 2021

GALACTIC CCSN DETECTION WITH ICECUBE

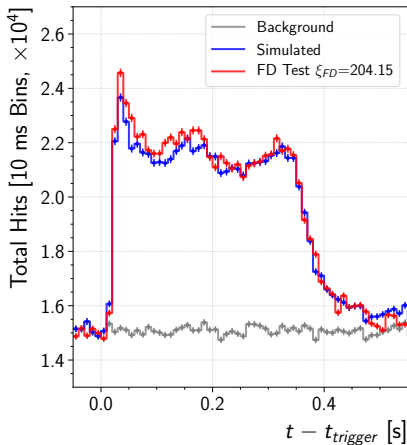


Simulated CCSN $\bar{\nu}_e$ interaction vertices registered by IceCube. A CCSN neutrino burst yields a strong signal.

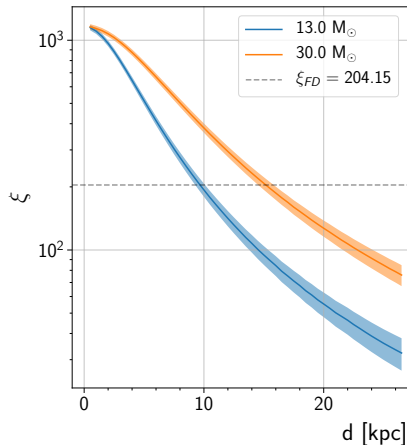
THE “FIRE DRILL” TEST OF OPERATIONAL READINESS



RESULTS OF OPEN, OFFLINE “FIRE DRILL” TESTS



Comparison of the lightcurve reported during the “Fire Drill” (FD) test and the simulated neutrino lightcurve.



Supernova triggering test statistic ξ for models from Nakazato *et al.* A trigger within expectation $\xi_{\text{FD}} = 193.36 \pm 13.91$ was obtained.

We are moving towards blind, online tests to examine operator and collaboration working groups.

- ▶ How will the collaboration respond to a high significance alert?
- ▶ Will CCSN signals close to the detection threshold be caught?
- ▶ Can measurements be promptly obtained from a CCSN signal?

Further extensions will include the SuperNova Early Warning System (SNEWS2.0), other SNEWS-member neutrino experiments, and SNEWS-member optical astronomers.

- ▶ How do other neutrino detectors (and IceCube) respond to an external SNEWS alert without an internal coincident signal?
- ▶ Given coordinates in the sky, can astronomers identify a transient (if there is one)?