

## Future astroparticle neutrino detection with liquid argon at SURF

*Thursday, May 12, 2022 3:00 PM (20 minutes)*

Neutrinos are produced copiously during a star's lifetime and offer a probe to understand the dynamics within the stellar interior where optical observation fails. Neutrinos produced from fusion reactions within the sun have been detected and studied on Earth since the Homestake experiment and subsequently facilitated the discovery of neutrino oscillations. Though solar neutrinos have been studied for over 70 years, open questions still remain. Further, as a massive star dies, it releases an enormous flux of neutrinos that is observable from across the galaxy. Recording a burst of supernova neutrinos in a modern neutrino detector would offer the clearest description yet of the exotic stellar interior as it transitions into either a neutron star or black hole. In this talk, we will discuss the prospect to measure these astrophysical neutrinos in liquid argon experiments, particularly DUNE at SURF.

**Primary author:** PERSHEY, Daniel (Duke)

**Presenter:** PERSHEY, Daniel (Duke)

**Session Classification:** Supernova & Solar Neutrinos - Parallel

**Track Classification:** Supernova & Solar Neutrinos