

Nuclear Lunch Questions (September 13, 2023)

Paper: [Observation of high-energy neutrinos from the galactic plane](#) by Abbasi *et al.*, IceCube collaboration, Science 380, 1388

1. What needs to be considered when determining the size and location of these neutrino detectors? Why does IceCube's detector core need to be so big? **[Ryan Conaway]**
2. Why can particles in a medium move faster than the speed of light in that medium? What's the mechanism behind Cherenkov Radiation? **[Abhinav Giri]**
3. How does Cherenkov radiation help in the detection of neutrinos? **[Yoon Lee]**
4. What is the importance of point-like neutrino sources? **[Josh Maldonado]**
5. What is the "background-only" hypothesis mentioned in the abstract? **[Austin Rambo]**
6. What are the veto regions within the detector, and why are they special? **[Sijan Regmi]**
7. What do DOMs measure? Can they measure discrete values or a continuous range of values? **[Mike Jeswald]**
8. Why does the neutrino path come "from the side" of the IceCube detector and not directly from the top or bottom of the detector? **[Brad McClung]**