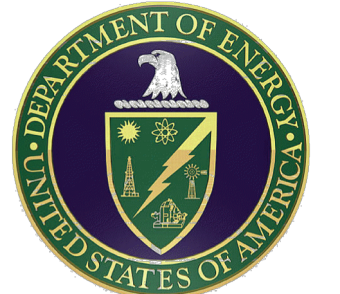
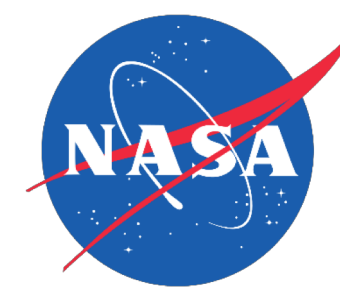
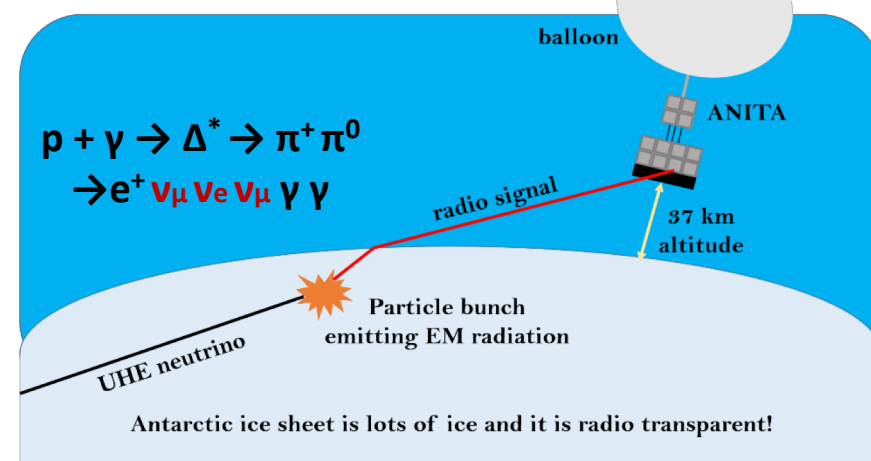


Astroparticle Experiments at OSU

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Welcome! At OSU we work on several Astroparticle Experiment projects including **IceCube**, **ANITA**, **ARA**, **T576**, and **HELIX**! They all look for high-energy particles of galactic, astrophysical or cosmogenic origins. All of these projects are highly collaborative efforts. Here at OSU, we are involved in all aspects of each experiment: hardware, simulation and analysis.



Above is a cartoon showing Askaryan radio detection of theorized ultra-high-energy (UHE) neutrinos

Why Antarctica?

- Has lots of ice for neutrinos to interact in and produce optical Cherenkov (IceCube) and radio Cherenkov (ANITA, ARA) light.
- It is radio-quiet compared to rest of the world so less noisy for radio experiments.
- Summer polar vortex allows balloon-borne ANITA and HELIX to fly in circles over the continent and stay at constant altitude. ANITA observes ~ **1 million km³** of Antarctic ice.



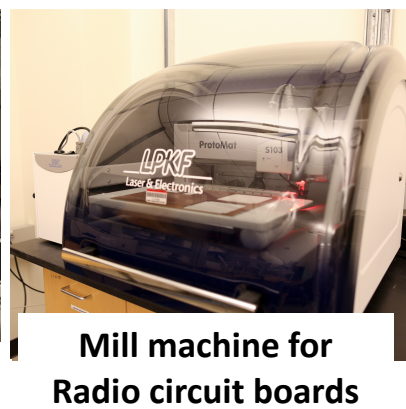
Large thermal chamber for rapid thermal testing



Pick & Place Machine for rapid mass assembly



Anechoic Chamber



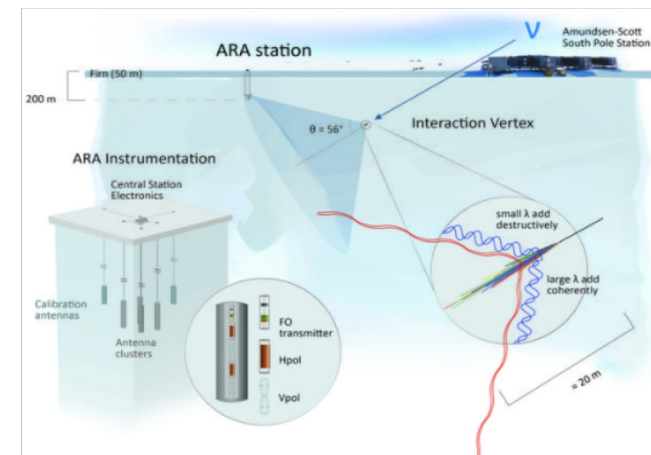
Mill machine for Radio circuit boards

DEPARTMENT OF PHYSICS

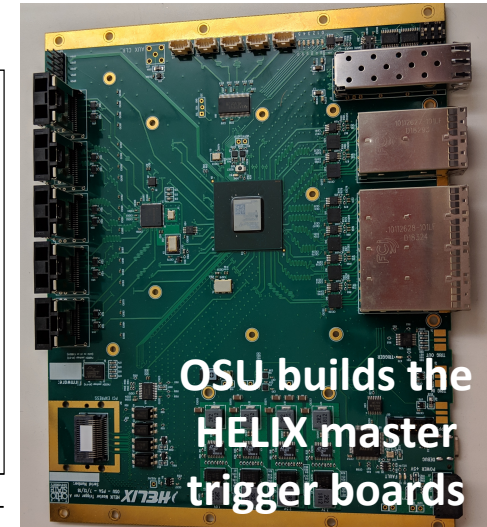
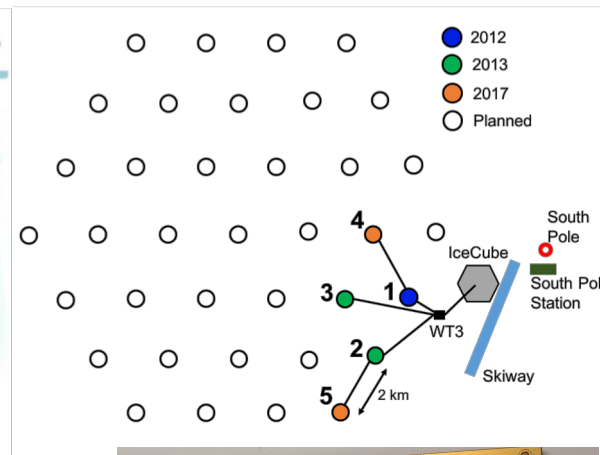
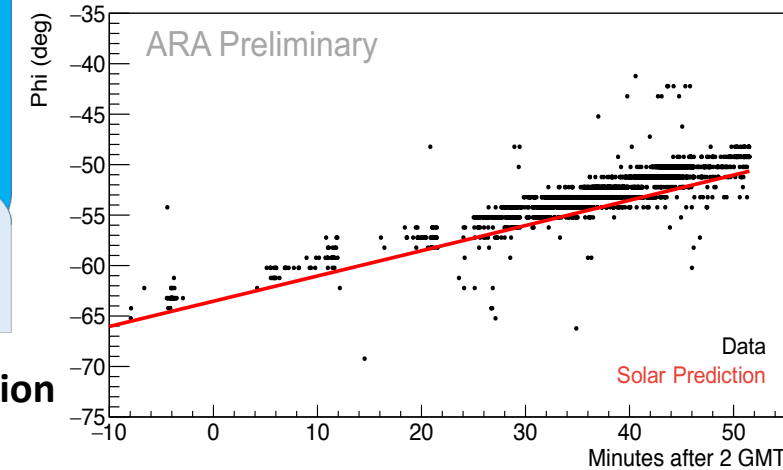


<http://u.osu.edu/aspire/>

Askaryan Radio Array (ARA)

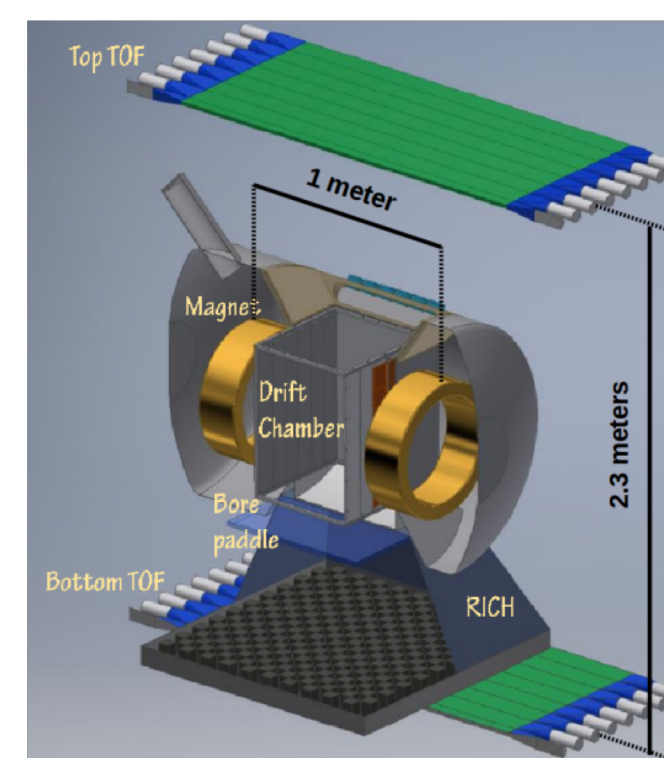


ARA observes Solar Flares

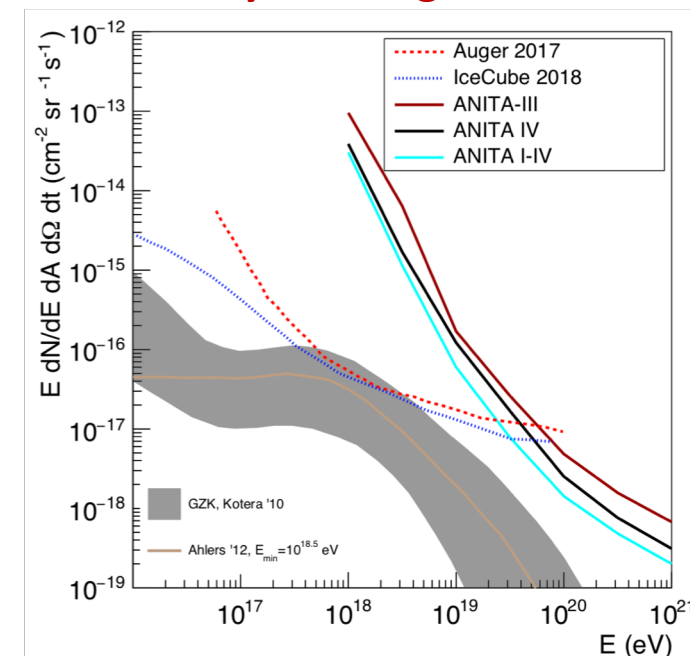


OSU builds the HELIX master trigger boards

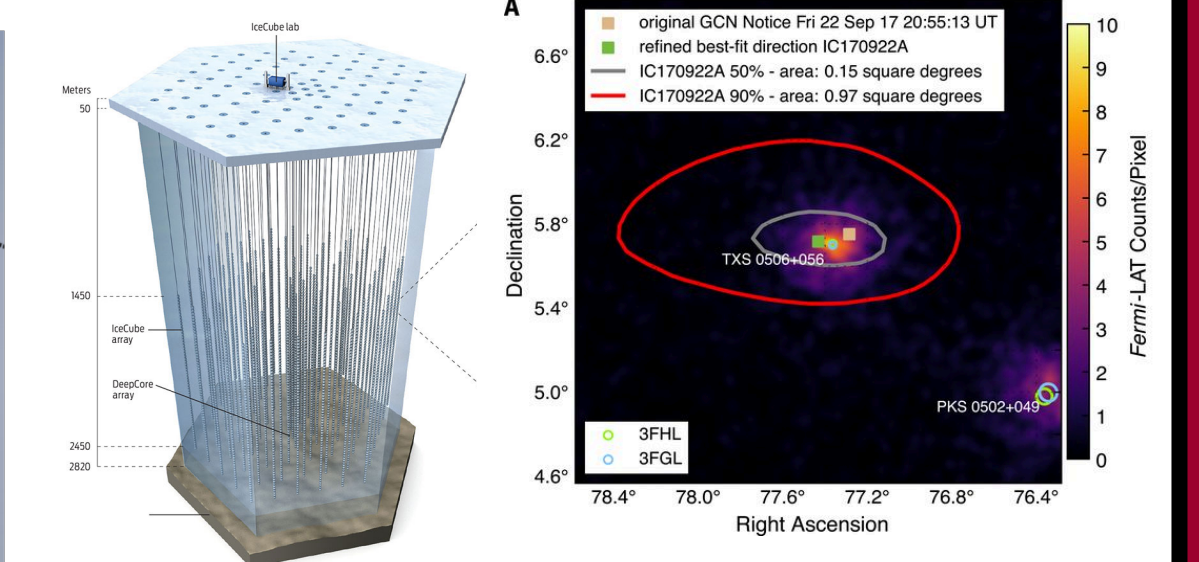
HELIX: High Energy Light Isotope eXperiment



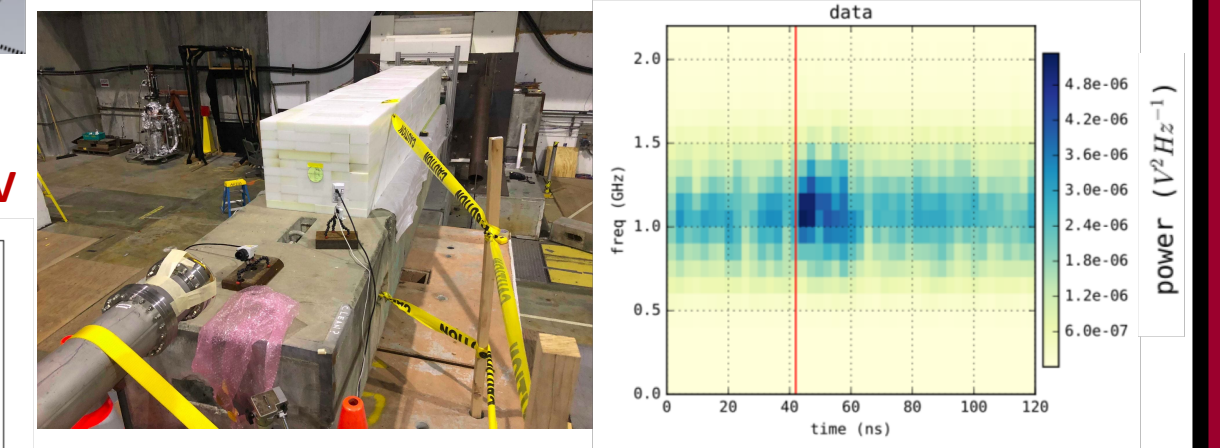
ANITA dominates Neutrino Astronomy at energies > 10¹⁹ eV



IceCube, 1 km³ neutrino observatory at the South Pole, observes neutrino from flaring blazar



T576 experiment fires electrons at target at SLAC, looking for radar reflections off generated plasma



Genetic Programming



Our science workshop for high school women funded by NSF -- Hands on projects!

