

Neutrinos are fundamental particles that have very little mass and only interact through the weak force. They can travel through matter with low probability of interaction. This makes them ideal messenger particles. There are three flavors of neutrinos each associated with the lepton it is named after: Electron neutrino, muon neutrino, tau neutrino. It was discovered that neutrinos can change from one flavor to another. Called neutrino oscillation, this phenomenon was not predicted by the Standard Model, and its discovery proved neutrinos have mass. This project intends to run detector simulations to determine the optimized configuration of a neutrino detection experiment that minimizes backgrounds and is optimized for improved neutrino flavor identification.