

Measurement of superradiance in liquid xenon with DireXeno

Saturday, 1 December 2018 11:30 (15 minutes)

Liquid xenon time projection chambers lead the field of dark matter direct detection and over the past decades, their volume have gradually increased, now reaching ton-scales. However increasing the volume is not enough, and more sophisticated background reduction techniques are needed. Shielding the detectors is fully exploited and the next generation of multi-ton detectors (e.g., DARWIN) will have to improve the discrimination of signal from background. These detectors will also reach the “neutrino floor” which is considered an irreducible background. In this talk I will present a new method for background reduction using effects of superradiance in liquid xenon. I will describe an experimental setup which aims to measure the temporal and spatial scintillation patterns of scatter events in liquid xenon. The apparatus is designed to hold a small bubble of liquid xenon surrounded by PMTs in 4π .

Session

Thesis Presentations (30+10 min)

Primary author: Dr ITAY, Ran (SLAC)

Presenter: Dr ITAY, Ran (SLAC)

Session Classification: Works in Progress