

Charge and Light Detection for Noble Liquid Time Projection Chambers (Block 5)

Friday, 30 July 2021 12:00 (1h 15m)

Abstract: Time projection chambers, which take 3D pictures of elementary particles as they interact with matter, have been used in experimental particle physics since the 1970s. Measuring how neutrinos, which are very light, very weakly interacting particles, interact with matter can help solve some key mysteries of physics, such as why the universe is matter instead of anti-matter. Huge time projection chambers filled with tons of noble liquid, such as argon or xenon, are the next generation of particle detectors designed to measure properties of neutrinos. These detectors need to make accurate measurements of the electric charge and light generated by neutrinos in the noble liquid mass. This talk will describe some of the instrumentation critical to accurate measurement of the electric charge and light in noble liquid time projection chambers.

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