PROSPECT antineutrino detector

Reactor core generates electron antineutrinos from beta decays of $^{235}$U fission daughters. The neutrinos interact with protons in liquid scintillator generating light that is read by photomultiplier tubes (PMTs).

- 4 tons $^6$Li-loaded liquid scintillator
- 11x14 optical segment array
- segment size: $119 \times 15 \times 15$ cm$^3$
- double-ended PMT readout
- access tubes for source calibration
- installed inside shielding package

PMT module design

UV transparent window
opaque acrylic housing
mineral oil
light guide
pusher plate
voltage divider

Pre-assembly production

Module assembly

PMT characterization