

# Status of JUNO's Taishan Antineutrino Observatory

*Friday 19 July 2024 18:15 (15 minutes)*

Taishan Antineutrino Observatory is a satellite experiment of JUNO. It consists of a ton-level liquid scintillator detector at 44 meters from a reactor core of the Taishan Nuclear Power Plant. It detects reactor antineutrinos by inverse beta decay. Silicon photomultipliers which have  $\sim 95\%$  coverage and  $\sim 50\%$  photon detection efficiency are used to collect photoelectrons, resulting in the light yield is  $\sim 4500$  photoelectrons per MeV. Dark noise of SiPM is suppressed by cooling the detector down to  $-50$  degrees. The main goal of TAO is to get the precise energy spectrum of reactor antineutrinos with very high energy resolution ( $<2\%$  at 1 MeV). It will deliver a reference energy spectrum for JUNO to reduce the impact from the reactor antineutrino flux and spectrum model uncertainties, provide a benchmark to nuclear databases, and search for light sterile neutrinos with a mass scale around 1 eV.

This talk will show the results of TAO 1:1 prototype and the latest status of final TAO detector.

## Alternate track

### I read the instructions above

Yes

**Author:** Dr LI, Ruhui (IHEP)

**Presenter:** Dr LI, Ruhui (IHEP)

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