

JUNO-TAO

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The Taishan Antineutrino Observatory (TAO or JUNO-TAO) is a satellite detector for the Jiangmen Underground Neutrino Observatory (JUNO). JUNO will use reactor antineutrinos at a baseline of ~ 53 km to probe the interference effects between the two atmospheric mass-squared differences, which are sensitive to the sign of the mass ordering. Located near the Taishan-1 reactor, TAO independently measures the antineutrino energy spectrum of the reactor with unprecedented energy resolution and by that uncovering its fine structure for the first time. Beyond that, TAO is expected to make world-leading time-resolved measurements of the yield and energy spectra of the main isotopes involved in the antineutrino emission of nuclear reactors. By that TAO will provide a unique reference for other experiments and nuclear databases. The TAO experiment will realize a neutrino detection rate of about 2000 per day. In order to achieve its goals, TAO is relying on cutting-edge technology, both in photosensor and liquid scintillator (LS) development which is expected to have an impact on future neutrino and Dark Matter detectors. In this talk, the design of the TAO detector with special focus on its new detection technologies will be introduced. In addition, an overview of the progress currently being made in the R&D for photosensor and LS technology in the frame of the TAO project will be presented.

Abstract title

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