

The R&D progress of the Jinping Neutrino Experiment

Tuesday, May 23, 2017 9:18 AM (18 minutes)

The Jinping Neutrino Experiment will perform an in-depth research on solar neutrinos, geo-neutrinos and supernova relic neutrinos. Many efforts were devoted to the R&D of the experimental proposal. The assay and selection of low radioactive stainless-steel (SST) was carried out. The U and Th concentration is less than $1e-8$ g/g for selected SST samples. A wide field-of-view and high-efficiency light concentrator is developed. Previous designs of light concentrators were optimized to attain a wide field view, 90 degree and a high efficiency, above 98%. At the same time a 1-ton prototype is constructed and placed underground at Jinping laboratory to 1) test the performance of several key detector components, like acrylic, pure water, using of ultra-high molecular weight polyethylene rope, 2) understand the neutrino detection technology with liquid scintillator and slow liquid scintillator and 3) measure the in-situ Jinping underground background, like fast neutron. The design, construction and initial operation of the 1-ton prototype will be discussed. A simulation framework is also developed to facilitate the experimental study of the 1-ton prototype and future detector design.

Primary author: Dr GUO, Lei (Tsinghua University)

Co-author: Dr WANG, Zhe (Tsinghua University)

Presenter: Dr GUO, Lei (Tsinghua University)

Session Classification: R2-Neutrino Detectors(2)

Track Classification: Neutrino Detectors