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New 1-ton neutrino detector at CJPL-I: equipment upgrades and performance

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Our research at the China Jinping Underground Laboratory (CJPL) has produced significant results from various phases of the 1-ton liquid scintillator neutrino detector. As part of the preliminary phase of the Jinping Neutrino Experiment (JNE), we have investigated its performance at CJPL-I. In 2023, we initiated an upgrade to the 1-ton detector, which primarily involves integrating self-developed electronic systems and 60 MCP-PMTs that we plan to incorporate into JNE. Following this upgrade, the 1-ton detector underwent a series of meticulous tests: first, a Dry-run test phase; next, a pure water operation phase; and finally, a liquid scintillator operation phase. These stages have yielded numerous research outcomes. In this conference, we will present our latest achievements regarding the 1-ton detector in several key areas: evaluations of performance and stability for both MCP-PMTs and self-developed electronic systems and assessments of operational performance during pure water and liquid scintillator phases.

Collaboration you are representing

Jinping Neutrino Experiment (JNE)

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