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# The Liquid Scintillator for JUNO

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The Jiangmen Underground Neutrino Observatory (JUNO) is a 20 kton multi-purpose Liquid Scintillator (LS) detector currently being built in a dedicated underground laboratory in Jiangmen (PR China). JUNO's main physics goal is the determination of the neutrino mass ordering using electron anti-neutrinos from two nuclear power plants at a baseline of about 53 km. JUNO aims for an unprecedented energy resolution of 3% at 1 MeV for the central detector, to be able to determine the mass ordering with 3 - 4  $\sigma$  significance within six years of operation.

To achieve JUNO's goals, particularly high demands are placed on the Linear AlkylBenzene (LAB) based LS. As the high-purity scintillator and the liquid handling systems related to it are key technologies for the success of the experiment, this talk is mainly focused on their development. The foreseen LS purification steps are described as well as their technical realization in purification facilities. Furthermore, an overview on a prototype testing phase with smaller pilot facilities built up at the Daya Bay experimental site is discussed here as well.

Based on the experiences from the pilot plant phase, the design of an online monitoring detector for the radiopurity of the LS was carried out. The purpose of this detector called OSIRIS (Online Scintillator Internal Radioactivity Investigation System) are measurements of the scintillator's internal radioactivity during the commissioning and operation of JUNO's LS production and purification facilities. Therefore, also a brief overview of OSIRIS is presented in this talk.

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## Collaboration name

JUNO

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