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Status and perspectives of the JUNO experiment

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The JUNO Jiangmen Underground Neutrino Observatory, a 20 kton multi-purpose underground liquid scintillator detector, has been proposed and approved for realization in the south of China. After an intense design phase, the overall concept of the structure of the detector has been finalized, paving the way towards the construction of the several components and subsystems, which will compose it. Meanwhile, the excavation of the site which will host the experiment has been started and is rapidly progressing.

The main physics target of JUNO is the determination of the neutrino mass hierarchy, which will be accessible through the measurement of the antineutrino spectrum from two high power nuclear complexes under installation 52 km away from the experimental site.

In this talk, after the description of the broad physics capabilities of the experiment, which include in addition to the crucial measure of the neutrino hierarchy the high precision determination of three oscillation parameters, as well as a rich astroparticle program, I will illustrate the technical characteristics of the detector, with particular emphasis on the technological challenges which are being addressed along the path towards its realization.

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