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Design and Status of the JUNO Experiment

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The Jiangmen Underground Neutrino Observatory (JUNO) is a large liquid scintillator detector under construction that will study antineutrinos from nuclear reactors at a baseline of around 53 km. The main detector will be located at a depth of 700m and will consist of 20 ktons of liquid scintillator in a 35.4 meter diameter acrylic sphere instrumented by 18,000 20-inch and 25,000 3-inch photomultiplier tubes. The liquid scintillator target will be surrounded by a large water cosmic-ray detector, and will be equipped with four complementary calibration systems. This design is tailored to reach an extremely high light yield (1200 PE/MeV), crucial to achieving the unprecedented energy resolution of 3% at 1 MeV. JUNO's program will be strengthened by a monitoring detector called TAO that will be placed at a very short baseline from one of the nuclear reactors and which will have an even better energy resolution. In this talk I will highlight the key aspects of JUNO's design and will report the status of the project.

Collaboration name

JUNO (Jiangmen Underground Neutrino Observatory)

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