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Features and goals of the JUNO neutrino oscillation experiment

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The high, and somewhat unexpected, value of the mixing angle theta13 recently measured by Day Bay, Reno and Double Chooz makes experimentally accessible the method proposed over ten years ago by Piai and Petcov for determining the neutrino mass hierarchy through the measurement with a liquid scintillator detector, of large mass, of the spectrum of the anti-neutrinos from a high power nuclear reactor, located at medium distance (a few tens of km) from the detector itself. It is in this context that the proposal for the experiment JUNO in China, 50 km away from a dual nuclear complex under construction, has been formulated. In this talk, after the description of the physics capabilities of the experiment, which include the crucial measure of the mass hierarchy, as well as a rich astroparticle program, I will illustrate the technical characteristics of the set-up, with particular emphasis on the technological challenges which have to be addressed and resolved along the path towards the concrete assessment of the neutrino hierarchy.

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