

The new experiment WAGASCI for water to hydrocarbon neutrino cross-section measurement using the J-PARC beam

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The T2K (Tokai-to-Kamioka) is a long baseline neutrino experiment designed to study various parameters that rule neutrino oscillations, with an intense beam of muon neutrinos. A near detector complex (ND280) is used to constrain non-oscillated flux and hence predict the expected number of events in the far detector (Super-Kamiokande). The difference in the target material between the far (water) and near (scintillator, hydrocarbon) detectors leads to the main non-cancelling systematic uncertainty for the oscillation analysis. In order to reduce this uncertainty a new water grid and scintillator detector, WAGASCI, has been proposed. The detector will be operated at the J-PARC neutrino beamline with the main physics goal to measure the charged current neutrino cross section ratio between water and hydrocarbon with a few percent accuracy. Further physics program may include high-precision measurements of different charged current neutrino interaction channels. In the talk the concepts of the new detector will be covered together with the actual construction plan.

Presentation type

Section talk (10+5 min)

Primary author(s) : Ms. OVSIANNIKOVA, Tatiana (NRNU MEPHI, INR RAS)

Co-author(s) : Mr. IZMAYLOV, Alexander (INR RAS, IFIC); KUDENKO, Yury (NRNU MEPHI, INR RAS, MIPT (SU))

Presenter(s) : Ms. OVSIANNIKOVA, Tatiana (NRNU MEPHI, INR RAS)

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