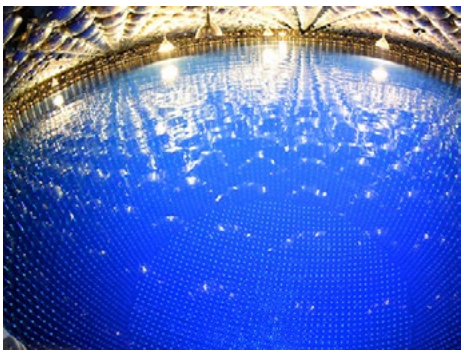

RESEARCH

NEUTRINOS: NEW RESULTS FROM THE T2K EXPERIMENT ON NATURE COVER STORY

The T2K (*Tokai to Kamioka*) scientific collaboration, which has been studying phenomena connected to neutrino oscillations for more than ten years, has published a study on Nature. This research provides increasingly convincing indications of the existence of a difference in the behaviour of neutrinos and their antiparticles (the antineutrinos). The new results show that the oscillation phenomenon, with which neutrinos “transform” into neutrinos of another kind, takes place with different probabilities for neutrinos in comparison to antineutrinos (CP violation). The research provides a glimpse into understanding one of the great mysteries concerning our universe: the clear prevalence of matter over antimatter. T2K is an international collaboration in which the Italian Institute for Nuclear Physics (INFN) has participated from the first planning stages, occupying roles with great responsibility. The collaboration receives contributions from INFN Divisions and the University of Naples Federico II, the University of Padua, Sapienza University of Rome, the Polytechnic University of Bari, and the INFN Legnaro National Laboratories. ■