construction of the detector, to be built in Ash River, 800 km away from Fermilab, has only just begun. "I would like to say we are ahead and hope to measure θ_{13} first," says Nishikawa. "But, of course, it is always good to have healthy competition and reproducibility helps too."

Measuring θ_{13} , however, would not mean that we know everything about neutrinos. There is also the difference between the oscillations of neutrinos and antineutrinos – defined by a parameter called δ – that may give insights into why there is more matter than antimatter in the universe. Yet finding this parameter will be out of reach for the T2K experiment and will probably need an even larger and better detector than SuperKamio-kande or a dedicated neutrino facility. "I personally do not think there is a Nobel prize for finding θ_{13} , but there will be a good chance for whoever can measure δ ," says Nishikawa.

Changing direction

Born shortly after the Second World War, Nishikawa completed his undergraduate studies at Kyoto University in 1971 but soon found himself leaving Japan. "I didn't really know what direction in physics I wanted to move into but in Japan there was not much opportunity in particle physics at the time as construction of KEK had only just started," he says. Nishikawa opted for the US and received his PhD in 1979 from Northwestern University in Chicago, where he spent the majority of his time at nearby Fermilab, working on a neutrino experiment.

After a few stints as a postdoc at the University of Chicago working on symmetry violation, Nishikawa returned to Japan in 1987 to work at University of Tokyo. However, he admits to becoming slightly disgruntled by the system in the US, which he feels became very bureaucratic with too many rules and proposal reviews. Nishikawa fears that a similar administrative overload may now be creeping into Japanese science.

Having spent most of his career as spokesperson for the K2K and T2K experiments, Nishikawa insists that he will keep chasing neutrinos and working on designing future neutrino facilities. But he is also relishing being head of the IPNS and delving into new areas of physics. "I think being director is a different role to being spokesperson," says Nishikawa. "I can take a lot of skills I learned from then into my new positions, but, of course, I now have to talk about topics other than just neutrinos!"

Awards

Row bubbles up over particle prize

The European Physical Society (EPS) has defended its handling of the 2009 prize for high-energy and particle physics despite complaints that the awarding committee overlooked a vital scientific contribution to the prize-winning work. The biennial award, worth SwFr 5000, was given to collaborators on the Gargamelle bubble-chamber experiment at CERN for their discovery in 1973 of the "weak neutral current" – one of the ways in which the weak nuclear force is mediated between fundamental particles. However, the award did not formally recognize the "leptonic" evidence for neutral currents, without which some particle physicists say the discovery could not have been made.

Several Gargamelle collaborators have contacted the EPS with their objections, with Alan Michette of King's College London and Don Perkins of Oxford University requesting that their names be removed from the prize list – but to no avail. "I am amazed and appalled that the leptonic neutral-current channel will not be recognized in the EPS prize," Michette told *Physics World*. "In my opinion this is a historical and scientific error that is being committed in the face of all expert advice to the contrary."

The discovery of weak neutral currents put the nascent Standard Model of particle physics on solid experimental ground. Until then, all known weak processes involved a rearrangement of electric charge and were described as taking place at a single point. But by the early 1970s a better theory of the weak force had emerged in which charged-current interactions are mediated by a charged particle called the W boson.

Gargamelle recorded the first of these neutral-current events in December 1972. Filled with 12 000 l of dense liquid in which charged particles leave trains of tiny bubbles, an electron (i.e. a lepton) appeared to have been kicked by an incoming neutrino, which leaves no bubble trace. The Gargamelle team soon observed many more neutral-current events, this time when an incoming neutrino struck a proton (i.e. a hadron).

Although there were many more "hadronic" than "leptonic" events, it was harder to pick the former out from the bulk of background events that produced a similar signature. Since the

Bubble trouble

The Gargamelle bubble chamber provided the first confirmation of a neutral-current interaction, in which an electron was kicked by a neutrino to produce a track (vertically, left).

electroweak theory made firmer predictions for the leptonic channel than it did the hadronic channel, largely because protons are not elementary particles, researchers say that the single-electron event was vital in confirming the neutral-current prediction.

The two Gargamelle results were published in September 1973 in the same issue of *Physics Letters B* (46 121 and 138). However, the EPS has recognized only the authors of the hadronic paper, leaving four authors of the leptonic paper – Charles Baltay of Yale University, Michel Jaffre of the CNRS in Orsay, Jacques Lemonne of Vrije Universiteit in Brussels and James Pinfold of the University of Alberta – out in the cold. "The leptonic channel was at least as important as the hadronic channel in confirming the discovery of neutral currents with Gargamelle," says Pinfold, who wrote to Per Osland, chair of the EPS's high-energy and particle-physics division, requesting the prize be amended. "My request was rebuffed."

In defence of its decision, the EPS cites the titles of the two neutral-current papers. "The board decided to give the prize for the 'observation of the weak neutral current interaction', so it was then natural to point to the 'observation' paper, rather than the [other paper], which presented the leptonic event but did not claim observation of the neutral current." Osland adds that the EPS cannot remove names from the list of winners because that would amount to tampering with the list of authors of a paper published 36 years ago.

Michette, however, puts events down to bureaucratic intransigence. "The committee couldn't admit that it had made a big mistake," he says.

Matthew Chalmers

The leptonic channel was at least as important as the hadronic channel in confirming the discovery of neutral currents with Gargamelle