I spend a very interesting and productive six weeks in Japan at the J-PARC research facility in Tokai, Iberaki, and was hosted by KEK, a particle physics research institute. The goal of the visit was to help continue the development of a neutrino detector. Neutrinos are fundamental matter particles, as is the electron, but the neutrino has no charge. Therefore, they do not interact very much with other matter particles, but they do play a crucial role in the Universe. This new detector is an extension of an existing experiment that is repeating an older US experiment that claimed to show that there were more than the currently known three neutrinos. If confirmed, this would be an enormous discovery and this relatively small particle physics experiment will redo this older experiment with more advanced technology under better conditions.

During my visit I discussed the physics, the required data analysis, and developed part of hardware to calibrate the detector that was being constructed. In addition, I was able to visit the neutrino centre at Tohoku University during my visit.

Before the visit, I participated in the first detector of the experiment. This visit allowed me to spend a longer time at J-PARC, and work closely with my colleagues to exchange ideas and the construction of the second detector. The experiment is nearing completion and will take data soon.

Doing research in Japan was sometimes challenging due to the language barrier. However, most colleagues spoke some English and everyone was extremely welcoming and accommodating. The hard-working and positive attitude makes it a very vibrant place for research. The short period allowed me to experience only some of the Japanese culture, which I found fascinating. I expect the collaboration to continue for the coming years and to return at least a couple of times.

My colleague Dr Takasumi Maruyama in front of the tank to hold the new neutrino experiment.

I am inside the tank that will house the new neutrino experiment.