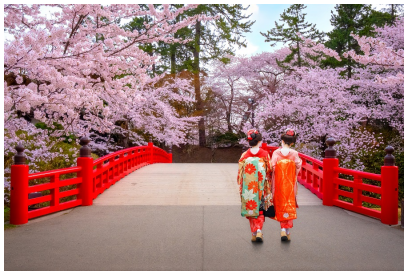

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Precise measurement of Neutrino Interactions at J-PARC in the NINJA experiment

mercredi 29 mars 2023 17:45 (25 minutes)

Precise measurement of neutrino oscillations is believed to be the key to opening up new physics, such as revealing the origin of the matter-dominated universe and discovering new particles outside of the Standard Model called sterile neutrinos. A deep understanding of neutrino-nucleus interactions is essential for the precise measurement of neutrino oscillations in sub-multi-GeV regions to reduce systematic uncertainties.
The NINJA experiment aims to precisely measure neutrino-nucleus interactions using nuclear emulsion as the main detector at J-PARC. Thanks to sub-micron spatial resolution of nuclear emulsion, it allows us to observe the interaction vertex clearly. Therefore, this enables precise measurement including short-track particles that have been difficult to measure so far.
Since 2014, we have carried out pilot/detector run to evaluate our detector performance at J-PARC. Then neutrino beam exposure and emulsion data taking for our first physics run with a 250 kg target including a 75 kg water target which is the same target as a large water Cherenkov detector was completed. In this talk, I will give some results and analysis status.

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