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## Measurement of charged-current interactions on water using a nuclear emulsion detector in the NINJA experiment

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The NINJA experiment aims to measure neutrino interactions, especially on water, using a nuclear emulsion detector. Owing to the excellent spatial resolution of the nuclear emulsion, we can measure low-momentum hadrons effectively.

In this presentation, we report results from a pilot experiment using a 3-kg water target, based on the latest NINJA paper. Multiplicity, angle, and momentum distributions of the outgoing muons, charged pions, and protons from neutrino-water interactions are reported, and they are compared with several interaction models. In the pilot run, protons from neutrino-water interactions were measured with a 200MeV/c threshold for the first time. We found good agreement between the observed data and model predictions for all kinematic distributions other than the number of charged pions and the muon kinematics shapes. These results clearly demonstrated the capability of the emulsion detector for the neutrino interaction modeling.

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