Precise measurement of Neutrino Cross-sections and Neutrino Flux with Hybrid **Emulsion** Experiments for finding neutrino CP violation - **NINJA** and **EMPHATIC** -

T. Fukuda (Nagoya University) on behalf of the NINJA Collaboration and the EMPHATIC Collaboration

A neutrino interaction in emulsion @J-PARC

We have developed the emulsion technology beyond DONUT and OPERA !!
Contribution for the detailed study of $\nu$ - Water interactions, 2p2h, CC1 $\pi$, $\nu_e$.

PHYSICS run is coming soon, 2019.

Emulsion-based Measurement of Production of Hadron At a Test beam In Chicagoland

Precise measurement of hadron production is useful to reduce the systematic uncertainty from $\nu$ flux.

Advanced emulsion technology is one of key to find $\nu$ CPV!!