Contribution ID: **120** Type: **Poster**

A Plan for Decay at Rest $\nu_e + \mathrm{Pb}$ Cross Section Measurement at J-PARC MLF; D@RveX

D@RveX stands for Decay at Rest $\nu_e + \mathrm{Pb}$ Cross(X) section measurement.
So far there has not been good low energy ν_e detection technique. Lead is expected to be an excellent low energy ν_e target because the cross section is expected to be very large and the delayed coincidence technique can be used to reduce the backgrounds. If decay at rest $\nu_e + \mathrm{Pb} \to e^- + n + \mathrm{Bi}$ cross section is measured, it brings new possibilities to the future neutrino experiments, such as low energy ν_e oscillation measurements, flavor specific measurement of the supernova explosion ν_e and understanding of ν_e-nucleus interactions.
We are preparing an experiment to measure the cross section, energy spectrum and direction of the emitted electron, at J-PARC MLF. The beam pulse is very narrow in time and the duty cycle is low at MLF, which help further to reduce the backgrounds significantly.
In this presentation, we will explain about conceptual idea of the experiment and status of the preparation.

Working group

WG6

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