

# Research and Developments for xenon bubble chamber detector for neutrinoless double beta decay search

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Neutrinoless double beta decay ( $0\nu\beta\beta$ ) search is an only-one realistic experiment for the Majorana neutrino test (neutrino = anti-neutrino). Some experiments have already set the lower limit on the half-life of  $0\nu\beta\beta$  as  $10^{25-26}$  years, however, the future high sensitivity search experiment need scalability and background rejection methods.

We propose a xenon bubble chamber as a  $0\nu\beta\beta$  search experiment. This detector has a possibility of particle identification by tracking of charged particles by bubble production in superheated liquid. The scintillation light by liquid xenon is also used for energy reconstruction and trigger to take pictures of bubbles. The liquid xenon detector has scalability and it is already established the purification methods by distillation.

We will present the possibility of xenon bubble chamber detector as a  $0\nu\beta\beta$  search experiment and current status of developments with a few ten cc vessel.

## Funding information

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