

AXEL — a high pressure xenon gas TPC for $0\nu\beta\beta$ search

Authorship annotation

for the AXEL collaboration

Session and Location

Monday Session, Poster Wall #52 (Auditorium Gallery Right)

Abstract content

We are developing a high pressure xenon gas time projection chamber, AXEL, in order to search for neutrino-less double beta decay ($0\nu\beta\beta$). For the purpose of achieving high energy resolution and tracking ability, we developed an original electroluminescence light collection system named electroluminescence light collection cell (ELCC), and are developing a high-voltage field cage to form a strong and uniform electric field. We have demonstrated the performance of ELCC for low energy (< 511 keV) gamma rays with a 10 L prototype detector, and are now constructing a 180 L prototype detector so as to evaluate the energy resolution near Q-value of xenon $0\nu\beta\beta$ (2.5 MeV). We will report on the result of the 10 L prototype, the status of the 180 L prototype and the expected sensitivity of a future 1-ton class detector searching for $0\nu\beta\beta$.

Poster included in proceedings:

yes

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Session Classification : Poster Session Monday

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