

The ^{136}Xe neutrinoless double beta decay search with LZ

Authorship annotation

for the LZ Collaboration

Session and Location

Monday Session, Poster Wall #67 (Auditorium Gallery Right)

Abstract content

The LUX-ZEPLIN (LZ) experiment is a 7 active tonne liquid xenon (LXe) time projection chamber designed primarily to search for weakly interacting massive particles (WIMPs), a leading candidate dark matter (DM) particle. Natural xenon contains 8.9% of the isotope ^{136}Xe , a known double beta decay element, endowing LZ with sensitivity to a rare double beta decay process, occurring without the emission of neutrinos, comparable to current experiments. Searches for this neutrinoless decay mode are performed by looking for an excess of events around the endpoint energy of the two-neutrino double beta decay mode of ^{136}Xe . A complete background model of LZ was constructed in order to fully describe the backgrounds near the double beta decay Q value. The model includes radioactivity from detector materials and the laboratory walls (such as gammas from ^{214}Bi and ^{208}Tl), radon mixed in the xenon, neutrino interactions and the double beta decay signal of ^{136}Xe itself.

Poster included in proceedings:

yes

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