Contribution ID: **243** Type: **Poster 0vbb**

NEXT: NEW backgrounds and extrapolation to NEXT-100

The NEXT experiment aims at the sensitive search of the neutrino-less double beta decay of ^{136}Xe at the LSC. A large-scale prototype of a high-pressure gas-Xenon electroluminescent TPC (NEW) is being operated since 2016, proving both the excellent energy resolution and the topological capabilities for background rejection. NEW is currently measuring the backgrounds for the $\beta\beta$ search. The internal ^{222}Rn activity has being measured, yielding $(37.5 \pm 2.3\ (\mathrm{stat.}) \pm 5.9\ (\mathrm{syst.}))$~mBq/m^3. The Rn-induced electron background has been characterized allowing for the validation of the MC expectations. The corresponding extrapolation to the NEXT-100 detector demonstrates that Rn will not be a dominant background source. For an expected total background below 4×10^{-4}~counts~keV^{-1}~kg^{-1}~yr^{-1}, NEXT-100 will reach a sensitivity to the $\beta\beta0\nu$ half-life of 6×10^{25} y after 3 years of data taking.

Authorship annotation

for the NEXT collaboration

Session and Location

Monday Session, Poster Wall #49 (Auditorium Gallery Right)

Poster included in proceedings:

yes

Primary author: Mr NOVELLA, Pau (IFIC)

Presenter: Mr NOVELLA, Pau (IFIC)

Track Classification: Poster (not participating in poster prize competition)