

Neutrinoless double beta decay search with XENON1T and XENONnT

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With the lowest background level ever reached by detectors searching for rare-events, XENON1T proved to be the most sensitive dark matter direct detection experiment on earth. The unprecedented low level of radioactivity reached, made the XENON1T experiment suitable also for other interesting rare-events searches including the neutrinoless double beta decay of ^{136}Xe . In this talk I will report on the current status of neutrinoless double beta decay of ^{136}Xe search in XENON1T.

Furthermore, in the context of the advancement of the XENON program, the next generation experiment, XENONnT, designed with a high level of background reduction aiming to increase the predecessor sensitivity in rare-events searches is currently under commissioning phase in the underground National Laboratory of Gran Sasso (LNGS): it will host 5.9 tonnes of liquid xenon as a target mass. I will also discuss the discovery potential of XENONnT in the search for neutrinoless double beta decay events and its general physics program.

Keywords

dark matter; neutrinoless double beta decay; xenon; TPC; low background; rare-events; XENON1T; XENONnT; DM; LXe; $0\nu\beta\beta$

Collaboration

Xenon 1T

other Collaboration

Subcategory

Experimental Results

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