



Executive Summary

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Neutrinoless double beta decay search with XENON1T and XENONnT

In this poster I will report on the current status of neutrinoless double beta decay search with both XENON1T and XENONnT experiments.

While the main goal of these experiments is the direct detection of WIMP dark matter candidates, they are also suitable for other interesting rare-events processes such as the neutrinoless double beta decay search of ^{136}Xe whose observation would be a direct proof of physics beyond the standard model.

In this contribution I will detail the detector response at high energy focusing on the development of a new signal correction algorithms used to improve our energy resolution up to 0.8% at $Q_{\beta\beta}$ in XENON1T, which allows to reach an expected sensitivity of 1.7×10^{24} years for neutrinoless double beta decay of ^{136}Xe .

The ongoing XENON1T blinded data analysis and the careful study of all the relevant backgrounds sources for both XENON1T and XENONnT will also be reported.