

# Neutrinoless double beta decay search with Xenon dual-phase Time Projection Chamber

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Rare events physics experiments developed by the XENON Collaboration are primarily devoted to the direct detection of Dark Matter via its scattering with xenon target nuclei in a dual-phase time projection chamber detector. The unprecedented low level of background reached by XENON1T demonstrated this detector technology to be suitable also for other exciting rare-events searches among which the neutrinoless double beta decay of  $^{136}\text{Xe}$ . In the context of the advancement of the XENON program we are now at the fourth generation of experiment with XENONnT which is currently collecting its first scientific data in the underground INFN Laboratori Nazionali del Gran Sasso, in Italy. I will show how XENONnT, with its target mass of 5.9 tonnes of liquid xenon and its high level of background reduction, will be able to simultaneously search for Dark Matter and neutrinoless double beta decay. I will also report on the ongoing sensitivity projection studies for neutrinoless double beta decay search in XENONnT.