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## Neutrinoless double decay with the nEXO experiment

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The nEXO experiment will search for neutrinoless double beta decay ( $0\nu\beta\beta$ ) using a 5-tonne scale LXe time projection chamber (TPC), enriched to 90 % in  $\text{Xe}^{136}$ , reaching a half-life sensitivity greater than  $10^{28}$  years after 10 years of lifetime. The observation  $0\nu\beta\beta$  decay would imply new physics due to the lepton number non-conservation, and the Majorana nature of the neutrino. The nEXO TPC measures the energy through ionization and scintillation light, which allows to reach energy resolution smaller than 1 % at the  $Q\beta\beta$  endpoint value. The design was improved so that the background would be reduced; electroformed copper, and the search for low activity materials are few of the areas of improvement. In this talk we will provide an overview of the nEXO experiment and the various design choices that lead to our current sensitivity.

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**Classification de Session:**  $0\nu\beta\beta$  - session 1, Chair Julien Masbou