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Search for $0\nu\beta\beta$ beyond 10^{28} years half-life sensitivity with nEXO

Thursday, May 12, 2022 9:10 AM (25 minutes)

nEXO is a 5 tonne monolithic liquid xenon (LXe) time projection chamber (TPC) planned to search for the neutrinoless double beta decay of ^{136}Xe with an estimated half-life sensitivity of >10^{28} years at 90% C.L.. Advancements have been made in terms of detector design, signal modelling and data analysis to support a refined estimate of the sensitivity and discovery potential of the nEXO experiment. In particular, we updated the detector geometry in line with most recent advancements in our engineering design. We implemented a more realistic and data-driven modelling of the light and charge channel signals and developed a Deep Neutral Network based analysis to discriminate between signal and background. This talk will cover the simulation, reconstruction and the physics reach of nEXO.

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