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The next generation neutrinoless double-beta decay experiment
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— The nEXO Collaboration is actively engaged in R&D towards a very large detector for neutrinoless double beta decay of ^{136}Xe . The nEXO detector is rooted in the current EXO-200 program, which has reached a sensitivity for the half-life of the decay of $1.9 \times 10^{25}\text{y}$ with an exposure of 99.8 kg-y. The baseline nEXO design assumes 5 tonnes of liquid xenon, enriched in the mass 136 isotope, within a large monolithic time projection chamber. The initial goal for nEXO is a neutrinoless double-beta decay half-life sensitivity of $1 \times 10^{28}\text{y}$, covering the inverted neutrino mass hierarchy with 5 years of data. We present the conceptual nEXO detector design, the current status of R&D efforts, and the physics case for the experiment.

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