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The next generation neutrinoless double-beta decay experiment nEXO JASON BRODSKY, Lawrence Livermore National Laboratory, NEXO COLLABORATION — The nEXO Collaboration is actively engaged in RD 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 1.9×10^{25}y with an exposure of 100 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 sensitivity goal for nEXO is a neutrinoless double-beta decay half-life sensitivity of 1×10^{28}y, covering the inverted neutrino mass hierarchy with 5 years of data. We present the conceptual nEXO detector design, the current status of RD efforts, and the physics case for the experiment.

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