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The XENONnT Dark Matter Experiment ELENA APRILE, Columbia University, XENON COLLABORATION — With XENON1T ready to search for dark matter with the highest sensivity of any experiment to-date the XENON collaboration started to secure funding and resources to upgrade the detector by the end of 2018- phase which we refer to as XENONnT. The XENONnT experiment will utilize the already-built-and-tested XENON1T infrastructures, such as the cryogenic system, Kr distillation system and Xe storage and recovery system, with the main upgrade of the time projection chamber (TPC). The upgraded XENONnT detector will be filled with 7.5-ton ultra-pure liquid xenon, tripling the active liquid xenon target mass of XENON1T. About 500 low-radioactive three-inch R11410 PMTs will be used. Background from internal sources such as radon will be reduced. It will enable another order of magnitude improvement in dark matter search sensitivity compared to that of XENON1T, or accumulate statistics if a positive dark matter signal is observed by XENON1T. The detailed TPC upgrade plan, the background control and reduction techniques, the predicted sensitivity reach will be presented.

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