

XENONnT: a step beyond XENON1T for an order of magnitude sensitivity increase by 2022

XENON1T, the first multi-ton LXe dark matter search world-wide, has a design sensitivity for spin-independent WIMP-nucleon cross section close to 10^{-47} cm² for 40 GeV WIMPs. This is about a factor 100 below the XENON100 best limit and will be reached with an exposure of 2 ton-year or by early 2018. To achieve another order of magnitude in sensitivity, we plan to build and install in the same XENON1T vacuum cryostat a new detector with more than twice the LXe mass and with even lower background. The new experiment will use the same shield, cryogenic plants and DAQ system of XENON1T, making the step the most cost effective and rapid realization of any planned G3 experiment.