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Latest results from XENON1T and status of the XENONnT expriment

Thursday, 5 December 2019 14:50 (20 minutes)

The XENON program aims at finding direct evidence for the existence of Weakly Interacting Massive Particles (WIMPs) using the dual-phase xenon time projection chamber technology. The XENON1T experiment was the first ton-scale detector searching for Dark Matter via nuclear recoils and constrained the Spin Independent interaction to the world's best limit. To further increase the WIMP discovery potential, the XENON collaboration is building the XENONnT detector with a target xenon mass of about 8 tons. The large target mass combined with an approximately 10×lower background than in its predecessor XENON1T, will increase the sensitivity by an order of magnitude, to 2·10ˆ{−48}cmˆ{2} for a spin-independent WIMP-nucleon cross-section.

This talk will report on the most recent analysis efforts the XENON1T collaboration is making, which further exploits the exposure of 1 tonne x year in ultra-low background conditions. The improvement to the XENONnT system and the XENONnT physics program will be also presented.

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