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Results of the WIMP search with the XENON1T experiment

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XENON1T is a direct dark matter search experiment, currently taking data at the Laboratori Nazionali del Gran Sasso (LNGS), Italy, and the first multi-ton scale detector of this kind. The experiment is based on a xenon dual-phase (liquid-gas) time projection chamber with ~ 2000 kg of target mass (out of 3200 kg total xenon mass), exploiting both scintillation and ionization signals to discriminate neutrons and Weakly Interacting Massive Particles (WIMPs) from electronic recoil background.

During the first data run of 34 live days, XENON1T reached the lowest electronic recoil background achieved in a dark matter detector and set the most stringent limit to spin-independent WIMP-nucleon elastic scattering, to $7.7 \times 10^{-47} \text{ cm}^2$ cross section for a $35 \text{ GeV}/c^2$ WIMP mass at 90% confidence level.

In February 2018 XENON1T has completed a longer science run, collecting 279 live days of data. In this talk we will present the results of the WIMP search with the XENON1T experiment.

Parallel Session

Dark Matter, Astroparticle Physics

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