



ID de Contribution: 260

Type: Non spécifié

Latest results from XENONnT Experiment

mercredi 19 novembre 2025 13:45 (15 minutes)

The XENONnT experiment, located at the INFN Laboratori Nazionali del Gran Sasso (LNGS) in Italy, is a direct dark matter search experiment using a dual-phase xenon Time Projection Chamber (TPC) with a total active mass of 8.6 tonnes. Thanks to its ultra-low background and low-energy threshold, XENONnT is optimized for the detection of Weakly Interacting Massive Particles (WIMPs), while also being sensitive to a broad range of rare-event physics. In this talk, I will present the latest results from XENONnT, focusing on the WIMP search using the combined data from the first two science runs, corresponding to a total exposure of approximately 3.5 tonne-years. I will also highlight the first observation of nuclear recoils from astrophysical ^8B solar neutrinos via Coherent Elastic Neutrino-Nucleus Scattering (CEvNS), marking the first detection of such neutrinos in a ton-scale detector. These results highlight the sensitivity of the XENONnT detector, not only for dark matter searches but also for exploring other rare-event searches.

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Classification de Session: Astrophysics & Multi-messenger