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The XENON Dark Matter Project

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Understanding the nature of the Dark Matter is one of the biggest challenges in frontier science today. Astrophysical and cosmological observations provide strong evidence for its existence. Several proposed candidates have been put forward over time: one of the most compelling are Weakly Interacting Massive Particles (WIMPs). The XENONnT dark matter program aims at finding direct evidence for the scattering of WIMPs with xenon target nuclei in an ultra-low background dual-phase time projection chamber detector located in the underground National Laboratory of Gran Sasso in Italy.

XENON1T currently achieves the most stringent limits on WIMP (Weakly Interacting Massive Particle) parameters. The technology is evolving rapidly since the last decade and, XENONnT is expected to continue leading the field.

I will review the current status of the XENON program and the recent Dark Matter results from the XENON1T experiment. The scientific reach of the XENON1T/XENONnT experiments will be completed with the future generation (the DARWIN project) aiming at 40 tons of liquid xenon.

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Collaboration / Activity

XENON

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