

Status of the XENONnT Dark Matter Search Experiment

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The XENONnT experiment, the successor of XENON1T, sets out for the direct detection of dark matter for more than one order of magnitude in sensitivity beyond the current best limits. XENONnT uses a dual-phase Time Projection Chamber with a total of 8.5 tons of liquid xenon, of which 6 tons are in the active volume. The experiment is currently in operation underground at the Laboratori Nazionali del Gran Sasso in Italy.

The installation of a new high-flow liquid purification system and a novel radon distillation column has been demonstrated to reduce the intrinsic radioactive background down to an unprecedented level. The addition of a neutron veto system around the XENONnT cryostat allows for significant suppression of the neutron background. Designated calibration campaigns are performed to ensure accurate modeling of the detector response. This talk will focus on these upgrades of the XENONnT experiment, and review its discovery potential and scientific goals.

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