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Recent results and status of the XENON program

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The XENON program aims at the direct detection of dark matter WIMPs with liquid xenon as target and detecting material. With detectors of increasing target mass and decreasing background, XENON has achieved competitive limits on WIMP-nucleon interaction couplings, but also on axions and axion-like particles. The XENON100 detector has been ongoing at the Laboratori Nazionali del Gran Sasso in Italy since 2009 with a dual phase xenon Time Projection Chamber employing 161 kg of liquid xenon. The most recent results will be presented. Current run mainly focuses on additional calibration for the low energy response of the detector and the validation of new calibration techniques in view of the next generation experiment, XENON1T. XENON1T will be the first experiment to use liquid xenon in a time projection chamber at the ton scale. It is designed to achieve two orders of magnitude higher sensitivity than the current best limits.

Collaboration

– not specified –

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