

Current status of LZ and LUX Dark Matter Experiments

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LUX-ZEPLIN (LZ) is a second-generation dark matter experiment to be installed 1480 m underground at the Sanford Underground Research Facility (SURF) in South Dakota, USA. The LZ detector is a dual-phase (liquid/gas) time projection chamber with active volume containing 7 tonnes of highly-purified xenon. The experiment will be looking for evidence of galactic dark matter in the form of Weakly Interacting Massive Particles (WIMPs). Its projected sensitivity for the spin-independent cross section is of 1.6×10^{-48} cm² for a 40 GeV/c² mass WIMP after 1000 live-days exposure of a 5.6-tonne fiducial mass. An overview, the timeline and the current status of the LZ experiment will be presented.

The most recent results from analysing the data from the LUX experiment (LZ predecessor) will be presented as well. This analysis, still very active at the moment, aims for better understanding of the properties of liquid xenon as particle detection medium and also looks for dark matter candidates beyond the standard WIMP paradigm.

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