

Status and prospects of the LZ dark matter experiment

Saturday, 30 June 2018 10:00 (30 minutes)

LUX-ZEPLIN (LZ) is an astroparticle experiment under construction at the 4850' level of the Sanford Underground Research Facility (SURF) in Lead, South Dakota, USA. LZ will explore the hypothesis that dark matter is comprised of weakly interacting massive particles (WIMPs). The centerpiece of the experiment is a two-phase liquid xenon TPC containing seven active tonnes of WIMP target material. Rejection of backgrounds is enhanced by a set of veto detectors, including a liquid scintillator Outer Detector. LZ has been designed to explore much of the parameter space available for WIMP models, with excellent sensitivity overall for WIMP masses between a few GeV and a few TeV. The cross section sensitivity is $1.6 \times 10^{-48} \text{ cm}^2$ at $40 \text{ GeV}/c^2$ and 90% C.L. LZ will also observe, for the first time, coherent scattering of 8B solar neutrinos on xenon nuclei. This talk will review the design and construction of LZ, its sensitivity to WIMP dark matter, and its additional scientific prospects.

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