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WIMP searches with liquid xenon: LUX and LZ

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We present the status of two WIMP search projects based on two-phase xenon emission detectors: the Large Underground Xenon (LUX) experiment, presently in the final stages of commissioning at the Sanford Underground Laboratory, and the LZ (LUX-ZEPLIN) project, a next-generation experiment featuring a 7-tonne xenon target being developed by US, UK and Portuguese teams. The LUX detector contains 350 kg of ultra-pure liquid xenon; the self-shielding capability of this dense medium allied to the precise reconstruction of particle interaction sites in three dimensions will allow the definition of a 100-150 kg fiducial volume featuring extremely low background rates. LUX will start its hunt for WIMP dark matter very soon. The LZ project is being developed in parallel, and it is envisaged that its multi-tonne target will occupy the same infrastructure after LUX. LZ will probe the entire parameter space presently favoured by theory down a WIMP-nucleon scalar cross-section of order 10^{-12} pb.

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