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Status of PICO-40L

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The PICO collaboration aims at direct detection of dark matter using superheated liquid detectors, or bubble chambers. Several generations of PICO detector have operated at SNOLAB, setting world-leading limits on the WIMP-proton spin-dependent coupling. PICO-40L is the next iteration of the PICO detector, and has been substantially redesigned since its predecessor, PICO-60. The main improvements are expected to be operational stability and background control. The construction of PICO-40L at SNOLAB is well underway, with data-taking expected to begin in the summer of 2018.

In addition to the further exploration of WIMP-coupling parameter space, the purpose of PICO-40L is to demonstrate the new design's feasibility for the next-generation ton-scale detector, PICO-500. The status of the PICO-40L detector commissioning, schedule for data-taking, and projected sensitivity to WIMP interactions will be presented.

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