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DEAP-3600 Dark Matter Search at SNOLAB

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The DEAP-3600 experiment is located 2 km underground at SNOLAB, in Sudbury, Ontario. It is a single-phase detector, which searches for dark matter particle interactions with 1 tonne fiducial mass of liquid argon target.

A first generation prototype detector (DEAP-1) with a 7-kg liquid argon target mass demonstrated a high level of pulse-shape discrimination (PSD) for reducing beta/gamma backgrounds and helped to develop low radioactivity techniques to mitigate surface related alpha backgrounds.

Construction of the large detector containing a total mass of 3600 kg of liquid argon is nearly complete. The target sensitivity to spin-independent scattering of Weakly Interacting Massive Particles (WIMPs) on nucleons of 10^{-46} cm^2 will allow one order of magnitude improvement in sensitivity over current searches at 100 GeV WIMP mass. DEAP-3600 commissioning starts summer 2014. This talk will present an overview and status of the project.

Summary

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