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Commissioning Data Results for the DEAP-3600 Dark Matter Experiment

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The DEAP-3600 experiment uses 3.6 tons of liquid argon for a sensitive dark matter search, with a sensitivity to the spin-independent WIMP-nucleon cross-section of 10^{-46} cm² at 100 GeV WIMP mass. This high sensitivity is achievable due to the large target mass and the very low backgrounds in the spherical acrylic detector design as well as at the unique SNOLAB facility in Sudbury, Canada. The liquid argon target is enclosed in an ultra pure acrylic vessel. 255 high efficiency photomultiplier tubes collecting scintillation light are separated from the argon through acrylic light guides and polyethylene filler blocks, providing neutron shielding and thermal insulation. Pulse shape discrimination is used to reject electromagnetic backgrounds from the WIMP induced nuclear recoil signal. We started taking commissioning data in February 2015 with vacuum and later gas inside the detector. Liquid argon fill is expected in mid 2015. In this talk we will present results from analysis of the commissioning data.

Oral or Poster Presentation

Oral

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