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Latest results from DEAP-3600

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DEAP-3600 is a WIMP dark matter direct-detection experiment located 2 km underground at SNOLAB near Sudbury, Ontario in Canada, which uses liquid argon as the target material. The detector consists of 3.3 tonnes of liquid argon in a large acrylic cryostat instrumented with 255 photomultiplier tubes. This experiment has set the most stringent limits in argon for WIMP-nucleon spin-independent cross-sections. A study was also performed using a non-relativistic effective field theory to consider other dark matter-nucleon interactions. The research includes some specific interactions and isospin-violating scenarios, where world-leading limits were achieved for some model parameters. This study also analyzed the modification of the exclusion limits due to potential substructures in the local dark matter halo, motivated by the observations of stellar distributions from astronomical surveys. The physics program and the latest results of DEAP-3600 will be presented in this talk.

In-person participation

Yes

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