



Canadian Association
of Physicists

Association canadienne
des physiciens et physiciennes

Contribution ID: 156

Type: Oral (Non-Student) / Orale (non-étudiant(e))

Current Status of DEAP-3600

Monday 7 June 2021 12:20 (10 minutes)

DEAP-3600 is a direct dark matter search experiment located 2km underground at SNOLAB. The experiment is located at this depth to shield the sensitive detector from cosmic rays. The experiment uses a liquid argon target to search for WIMP dark matter candidates. Liquid argon is chosen as a target material for three reasons: it has a good scintillation light yield, it is transparent to its own scintillation light, and the nature of its scintillation enables the significant reduction of some backgrounds via pulse shape discrimination. Approximately 3300 kg of liquid argon is used within the DEAP-3600 experiment. The liquid argon is contained within a hollow acrylic sphere with an inner radius of approximately 85 cm. The acrylic sphere is surrounded by 255 photomultiplier tubes to detect the scintillation light. A TPB wavelength shifter is applied to the inside face of the acrylic vessel, the wavelength shifter turns the 128 nm light produced by scintillating argon to 420 nm where the PMTs are more sensitive.

This talk will give an update on the current status of the experiment and an overview of some of the recent analyses performed. Several hardware upgrades are scheduled to occur in 2021, these upgrades will be described as well as the future plans for the upgraded detector.

Author: STRINGER, Mark (Queen's University)

Presenter: STRINGER, Mark (Queen's University)

Session Classification: M1-9 Dark matter experiment and Channel of detection I (PPD) / Expérience sur la matière sombre et canal de détection I (PPD)

Track Classification: Particle Physics / Physique des particules (PPD)