

Contribution ID: 2518 Type: Oral Competition (Graduate Student) / Compétition orale (Étudiant(e) du 2e ou 3e cycle)

Alpha backgrounds in DEAP-3600

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DEAP-3600 is a liquid argon (LAr) based spin-independent direct dark matter search experiment. It is designed to detect nuclear recoils induced by the elastic scattering of weakly interacting massive particles (WIMPs) on argon nuclei. DEAP-3600 recently reported its second physics result that included the best reported upper limit on the WIMP-nucleon spin-independent cross section on a LAr target of 3.9×10^{-45} cm² for a 100 GeV/c² WIMP mass at 90% C. L. An essential component of this result involved measuring the rates of alpha-decays within the detector and determining their impact on the expected background rate in the WIMP search region. Alpha-decays from the uranium and thorium series were measured in the liquid argon and on the surfaces of the inner-detector. The techniques used to measure and characterize these rates in-situ are presented.

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