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Energy response and position reconstruction in the DEAP-3600 dark matter experiment

Monday, 24 July 2017 14:00 (15 minutes)

DEAP-3600 is a dark matter WIMP (Weakly Interacting Massive Particles) search experiment, which aims to detect nuclear recoils from WIMP scattering in an argon target located 2 km underground at SNOLAB. At WIMP masses of 100 GeV, DEAP-3600 has a projected sensitivity of 10^{-46} cm^2 for the spin-independent elastic scattering cross section of WIMPs. The beta emissions from the intrinsic ^{39}Ar present in the natural Ar target, as well as external calibration sources, can be used to understand the detector energy response and position reconstruction in the energy region of interest for WIMP signals. This talk will present the techniques and results of the energy response and position reconstruction calibration in DEAP-3600.

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