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Direct dark matter search with DEAP-3600

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DEAP-3600 is a single-phase liquid-argon Dark Matter direct detection experiment located 2 km underground at SNOLAB, in Sudbury, Canada. With a 1 tonne fiducial mass, the target sensitivity to spin-independent scattering of 100 GeV weakly interacting massive particles (WIMPs) is 10^{-46} cm^2. The detector was designed and built to reach a background level of less than 0.6 events in 3 tonne-years exposure. This included designing all parts of the detector to prevent or veto backgrounds, radio-purity screening for all detector materials, working with suppliers to source radio-pure materials, and using construction techniques that limit contaminations with radio-isotopes. The largest remaining background - beta decays from Ar-39 - is mitigated offline through pulse shape analysis. DEAP-3600 has been taking physics data since late 2016. This talk presents first results and the status of the experiment.

Authors: POLLMANN, Tina (Technische Universität München); COLLABORATION, DEAP

Orateur: POLLMANN, Tina (Technische Universität München)

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