

Abstract Submitted
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Pulse Shape Discrimination (PSD) in Liquid Argon from DEAP-1 BEI CAI, MARK BOULAY, Queen's University, Canada, FRASER DUNCAN, SNOLAB, Canada, KEVIN GRAHAM, Carleton University, Canada, AKSEL HALLIN, PHILIP HARVEY, CHARLES HEARNS, Queen's Univeristy, Canada, CHRIS JILLINGS, SNOLAB, Canada, JEFF LIDGARD, REUBLE MATTHEW, PARADORN PASUTHIP, PETER SKENSVED, Queen's Univeristy, Canada, DEAP-1 COLLABORATION — DEAP (Dark Matter Experiment using Argon Pulse-shape discrimination) plans to search for WIMPs (Weakly Interacting Massive Particles) through elastic scattering on ^{40}Ar . In this single-phase liquid argon (LAr) experiment discrimination of β and γ backgrounds from the WIMP-induced nuclear recoil signal is achieved by analyzing the pulse shape of scintillation light. The available pulse-shape discrimination (PSD) power at low energy (approx. 60 keV nuclear recoil) is examined using calibration data from DEAP-1, a 7 kg low-background LAr scintillation detector constructed at Queen's University in Canada, and compared to the required PSD for the planned 1000 kg LAr dark matter search.

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