

Flasher Events; The Analysis of a Potentially Problematic Background in the DEAP3600 Dark Matter Search

Tuesday, August 20, 2024 8:55 AM (10 minutes)

CASST Abstract Submission

Matt Poser, July 30th 2024, Queen's University

CASST Competition, August 19th-20th, Laurentian University, SNOLAB, McDonald Institute

The DEAP 3600 experiment is a particle detection experiment using liquid argon scintillation and pulse shape discrimination in an effort to detect dark matter in the form of weakly interacting massive particles. The experiment uses PhotoMultiplier Tubes (PMTs) which detect scintillation light from particle interactions and emit electrical signals to be processed by the experiment's data collection system. A kind of event not caused by particle interaction has been observed in both the DEAP 3600 and SNO experiment, in which a singular PMT emits a large electrical signal. Following the initial signal, the immediate surrounding PMTs emit slightly 'dimmer' signals and the rest of the PMTs inside the detector emit 'very dim' signals. These unique events, dubbed flasher events, have the possibility to continue into a series of subsequent lower energy flasher events. These subsequent lower energy flashes could possibly be a problematic background event for the DEAP dark matter search. Work is underway to understand the characteristics of these flasher events and make cuts to isolate them from raw data.

What area of study best describes your talk?

Physics

If you answered 'Other', please provide the study area.

Primary author: POSER, Matt (Queen's University)

Presenter: POSER, Matt (Queen's University)

Session Classification: Presentations