

All hands on DEAP

Monday, August 19, 2024 10:50 AM (10 minutes)

DEAP-3600 is one of the leading candidates in the race of searching for dark matter. The detector uses 3.3 tonnes of liquid argon for the direct detection of dark matter. Scintillation events in the liquid argon (LAr) are detected by 255 photomultiplier tubes (PMTs). Pulse shape discrimination (PSD) techniques are employed to differentiate electromagnetic background events, from the nuclear recoil signal. Although pulse shape discrimination (PSD) achieves high effectiveness in distinguishing between events of interest and background events, it cannot remove the background contributions from neutrons and alpha particles originating from both internal and external sources of the detector. Therefore, hardware upgrades are conducted together with data analysis to mitigate background interference. This presentation will cover my summer work on assisting the underground hardware upgrades and pulse shape analysis. Both of these efforts contribute to the upcoming third liquid argon fill.

What area of study best describes your talk?

Physics

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

Primary author: BUI, Trang

Presenter: BUI, Trang

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