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## **(G\*) Characterization of wavelength shifters for background rejection in liquid argon dark matter experiments**

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Liquid Argon (LAr) is used as a target material by many WIMP dark matter search experiments for its high light-yield and excellent background rejection capability. LAr produces scintillation light at 128nm, which conventionally requires a wavelength shifting (WLS) material to be detected by photomultiplier tubes. Tetraphenyl-butadiene (TPB) is the WLS material of choice for most LAr detectors, including DEAP-3600 at SNOLAB, and is used to shift the primary scintillation light. Our work aims to characterize candidate thin films containing pyrene developed at Carleton University. Their long fluorescence time constant can be used for efficient rejection of pathological detector backgrounds. Fluorescence yield and mechanical stability in cryogenic conditions are also investigated. We describe the Queen's University cryogenic test facility which boasts good optical efficiency and a base temperature of 4K. We present results from pyrene thin films with various concentrations and purity as well as TPB as a reference.

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