

Abstract Submitted
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Characterization of the Light Response of the XENON-10 Dark Matter Detector¹ ROMAN GOMEZ, Rice University, XENON COLLABORATION — The dual-phase liquid/gas xenon time projection chamber for the search of Dark Matter, XENON-10, relies on the detection of charge and light within the sensitive detector. We describe simulations of the scintillation light response of XENON-10 in the light-sensitive volume and compare these results to calibration data. The PMT pattern of scintillation light provides a strong consistency check with the X/Y-position derived from the charge signal (detected via proportional scintillation in the gas phase) given the Z-coordinate measured by the electron drift time. In the current detector, the light-sensitive volume is greater than the charge-sensitive volume, which implies regions of partial information, not usable for Dark Matter detection, but potentially relevant for the understanding of backgrounds in the fully sensitive detector volume.

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