

Characterization of the R5912-02 MOD Photomultiplier Tube at Cryogenic Temperatures

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Hamamatsu's R5912-02 MOD is an 8 inch diameter cryogenic photomultiplier tube of interest for light detection in large liquid noble dark matter and neutrino detectors. The R5912-02 MOD will be used in the MiniCLEAN single phase liquid argon dark matter detector and has been tested and characterized at cryogenic temperatures in the single photoelectron regime. A detailed model of the single photoelectron timing properties, pulse shape, and charge distribution will be described. The model extracts these parameters from fits to the unique multi-component timing structure of the R5912-02 MOD pulses.

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