

Abstract Submitted
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Fast Scintillating Paddles for DarkLight¹ DANIEL PALUMBO, MIT

— The DarkLight experiment proposes to search for a dark photon in the 10-100 MeV mass range via its production in fixed-target electron-proton collisions. The experimental design is driven by the desire to detect the complete final state including the recoiling proton, while also sustaining a very high luminosity in order to search for this rare process. Although the final design of the DarkLight experiment calls for fully streamed detector readout, initial studies will rely on traditional, triggered approaches. In order to facilitate precision measurements at high rate, a fast, thin, finely-segmented trigger detector based on plastic scintillating paddles and custom amplifiers was developed. I will discuss this design and its performance in recent DarkLight beam studies, as well as the work we have done to develop detectors using individual scintillating fibers.

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