

Abstract Submitted
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Triggers for the Light Dark Matter eXperiment NIRAMAY GOGATE, Texas Tech Univ — The particle nature of dark matter remains a mystery to date. Scientists have proposed numerous theories about the fundamental constituents and origins of dark matter, but none have been proven experimentally. New theoretical developments have motivated "hidden sector" dark matter in the mass range of 1 MeV to 1 GeV. The Light Dark Matter Experiment (LDMX) uses an electron beam to produce dark matter in fixed-target collisions. A low current, high repetition rate electron beam, exploiting SLAC's LCLS-II upgrades, will provide LDMX with sufficient luminosity to explore thermal relic targets over most of the 1 MeV to 1GeV mass range. With a novel detector design, LDMX is expected to definitively test thermal relic targets for dark matter masses between one and several hundred MeV. The LDMX trigger system will play a crucial role in achieving these physics goals. A strategy will be presented in which scintillator-based counting detectors will provide the basis of a missing energy trigger to support the LDMX dark matter program. Preliminary work on simulations of these detectors to estimate their performance will be presented.

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