

Abstract Submitted  
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**Searching for Dark Matter with Electron Beams using the Missing Momentum and Energy Techniques** JEREMIAH MANS, Univ of Minn - Minneapolis, LDMX COLLABORATION — New experiments at electron accelerators would provide a remarkable opportunity to probe the concept of thermal relic dark matter over most of the viable sub-GeV mass range to a decisive level of sensitivity. This talk will discuss the possibilities of the missing-energy and missing-momentum techniques, with a particular focus on the Light Dark Matter eXperiment (LDMX). LDMX employs the missing-momentum technique, where electrons scattering in a thin target can produce dark matter via dark bremsstrahlung giving rise to significant missing momentum and energy in the detector. To identify these rare signal events, LDMX individually tags incoming beam-energy electrons, unambiguously associates them with low energy, moderate transverse-momentum recoils of the incoming electron, and establishes the absence of any additional forward-recoiling charged particles or neutral hadrons. This talk will summarize the small-scale detector concept for LDMX and ongoing performance studies, while also discussing the potential of other proposed experiments based on electron accelerators.

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