A BACKGROUND FILTER FOR THE DARK MATTER SEARCH IN THE VISIBLE CHANNEL AT LDMX. Anmol Sandhu, University of Virginia. The Light Dark Matter eXperiment (LDMX) is a proposed experiment in the search for dark matter. Specifically, it probes the sub-GeV mass range. If dark matter were to be in this mass range, it could be a thermal relic from the beginning of the universe. In both searches, a stream of electrons is fired through a 1.5T magnetic field into a thin target. Here, if dark matter is in the expected mass range, the electron can radiate dark photons. This dark photon could escape detection leaving a missing momentum signature, or decay into standard module particles leaving a visible signature. The visible search is the primary focus of this project. Both the electron and A’ will go into an electromagnetic calorimeter (ECal). The electron will be detected immediately in the ECal, but the A’ will go deeper into the ECal before decaying into an electron-position (e-/e+) pair. Looking deep into the ECal for this decay is the goal of the visible search. If this decay is detected, it would provide evidence that dark matter is in the sub-GeV mass range. To make this easier, I developed a filter to remove any events that occur before the halfway point of the ECal. This veto is important to remove a class of background that is caused by events with a standard model photon with a delayed interaction in the ECal that could fake our signature. These events are difficult to differentiate from the desired decay beyond their general location in the ECal and so they needed to be removed to make the visible search function as it needs to. Author contact: [gan3dz@virginia.edu](mailto:gan3dz@virginia.edu).