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LUX Trigger System MONGKOL MOONGWELUWAN, University of Rochester/LUX, LUX COLLABORATION — The Large Underground Liquid Xenon Detector (LUX) is a dual-phase xenon TPC, operating at the Sanford Underground Research Facility (Lead, SD) designed to search for WIMPs. The LUX trigger system can trigger on S1 pulses, S2 pulses, or S1 pulses followed by S2 pulses within a time window (set by the maximum electron drift time within the detector). In the first WIMPs search run, the trigger system was set to trigger on S2 pulses. The S2 pulse area is calculated in real time and a trigger is generated when S2 pulses with areas of 8 or more photoelectrons (phe) are detected in two or more trigger channels. The performance of the system during the run was monitored using information integrated into the data stream. The noise in the system was monitored continuously by measuring the trigger rate as function of trigger threshold. These two processes are carried out in parallel with the main operation of the system. We determined that the trigger efficiency from this run was >95% for pulses with areas larger than 100 phe, which is equivalent to 3-4 ionizing electrons extracted from the liquid surface. In this talk, we will discuss our experience with the system during the first WIMPs run, and the method used to determined the trigger efficiency.

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