

The Latest Analyses of the LUX Dark Matter Project

Thursday, May 31, 2018 5:10 PM (20 minutes)

More recent results will be shared from the Large Underground Xenon (LUX) detector, which was a 100-kg-scale, 2-phase xenon direct dark matter search experiment, operated between 2013–16 at SURF. Dark matter, the missing 25% of the mass-energy content of the universe, is sought in more ways, using effective field theory operators to extend the search to higher-mass Weakly Interacting Massive Particles (WIMPs), and electron instead of nuclear recoil, to seek axions and mirror dark matter. In addition, annual and diurnal modulation analyses of the 427 live-days of exposure will be explored. Lastly, old and new calibrations (including ^{14}C β , ^{127}Xe , $^{83\text{m}}\text{Kr}$, and D-D neutron) and position, energy, field, and pulse-shape reconstruction techniques plus trigger efficiency will be reviewed, in the context of new background and signal models being developed by LUX which will extend to higher energies than ever before.

E-mail

mszydakis@albany.edu

Collaboration name

LUX (Large Underground Xenon)

Funding source

Department of Energy

Primary author: SZYDAGIS, Matthew (U Albany)

Presenter: SZYDAGIS, Matthew (U Albany)

Session Classification: Dark Matter

Track Classification: DM