

Abstract Submitted
for the FWS19 Meeting of
The American Physical Society

Data Analysis and Simulation Validation of LZ Direct Dark Matter Detection Experiment¹ JULIEN ALFARO, WING TO, CSU Stanislaus, LUX-ZEPLIN COLLABORATION — Dark matter makes up 85% of the total mass of the universe. We have observed the effects of dark matter in the rotational velocities of galaxies, the way light bends around clusters of galaxies, and in the anisotropy of the cosmic microwave background. LZ is an experiment to directly detect dark matter with a liquid xenon target. If dark matter has a weakly interacting component, it will scatter off the liquid xenon nuclei leaving on the order of a few keV of recoil energy. As part of the experiment, the detector was tested using various radioactive sources. The goal of my Summer research project was to learn how to analyze simulated data from LZ. At the end of the Summer a Doke Plot of radioactive sources was made to validate the simulation framework.

¹STEM RISE, CSU Stanislaus RSCA Grant

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Date submitted: 08 Oct 2019

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