Abstract Submitted
for the APR18 Meeting of
The American Physical Society

Measurement of the Davis Cavern Gamma-Ray Background at the Sanford Underground Research Facility SALLY SHAW, UC Santa Barbara, LZ COLLABORATION — The LUX-ZEPLIN (LZ) experiment will search for dark matter particle interactions with a liquid xenon TPC located within the Davis cavern at the Sanford Underground Research Laboratory, Lead, South Dakota, 4850 feet below the surface. Whilst the underground environment is ideal for low background searches due to the attenuation of cosmic rays, it introduces a new background from gamma-rays emitted from the decays of ^{40}K and the ^{238}U and ^{232}Th chains within the cavern rock. I will report on a series of gamma-ray measurements performed inside the cavern with a sodium iodide detector, the determination of rock isotope concentrations using comparison to a simulated model and the expected consequences for the LZ experiment.

Sally Shaw
UC Santa Barbara

Date submitted: 12 Jan 2018 Electronic form version 1.4