



Contribution ID: 86

Type: Poster

## Measurement of Background Gamma Flux in the Davis Cavern for the LZ Experiment

*Friday, July 27, 2018 5:10 PM (20 minutes)*

The LUX-ZEPLIN (LZ) experiment will search for dark matter particle interactions with a liquid xenon TPC in the Davis cavern at the Sanford Underground Research Facility, Lead, South Dakota, 4850 feet below the surface. The underground environment reduces the cosmic ray flux by a factor of  $10^6$ , but there remains a potential background from  $\gamma$ -rays emitted from the decays of  $^{40}\text{K}$ ,  $^{238}\text{U}$  and  $^{232}\text{Th}$  naturally occurring in the rock surrounding the laboratory. In-situ  $\gamma$ -ray measurements were taken with a sodium iodide detector in several locations within the cavern, yielding average radioactivity levels. We will present the radioactivity levels determined with these measurements, along a first attempt at mapping non-uniformities in the  $\gamma$ -flux due to differences in rock composition.

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**Session Classification:** 5.5 Direct Detection

**Track Classification:** Direct Detection