



Contribution ID: 181

Type: **not specified**

Measuring trace krypton for the LUX-ZEPLIN dark matter search

Thursday, 18 March 2021 12:20 (20 minutes)

As liquid xenon dark matter detectors grow to the multi-tonne scale, the requirements on xenon purity become more stringent. For the LUX-ZEPLIN (LZ) experiment, Kr impurities must be suppressed to concentrations less than 300 parts-per-quadrillion (ppq) (g/g) (Kr/Xe) due to backgrounds caused by Krypton-85, a beta emitter with a 10.8 year half life. This talk reviews the cold trap mass spectrometry instrumentation developed by LZ to detect Kr impurities in Xe with a concentration sensitivity of 50 ppq. This methodology is routinely employed by LZ both at the SLAC National Lab, where the Xe inventory is processed to remove Kr, and at the experimental site at SURF in Lead, SD.

Primary author: SILK, John

Presenter: SILK, John

Session Classification: Noble Elements

Track Classification: Noble Elements