Abstract Submitted
for the APR20 Meeting of
The American Physical Society

Production and Installation of the LUX-ZEPLIN Cathode High Voltage Delivery System JAMES WATSON, DANIEL MCKINSEY, ETHAN BERNARD, University of California, Berkeley, LUX-ZEPLIN COLLABORATION — UX-ZEPLIN (LZ) is a 7-ton active volume dual phase xenon time projection chamber (TPC) that will perform several rare event searches starting later this year. The 1.456 meter drift length poses particular challenges for the experiment. The generation and maintenance of a uniform drift field of 300 Volts / cm is one aspect that becomes difficult at large length scales. High voltage must be delivered to the cathode without producing any additional light, spoiling the xenons purity, or exceeding the allowed radioactive background. To ensure that these effects will not diminish LZs sensitivity, a prototype of the cathode high voltage cable feedthrough was tested at Lawrence Berkeley National Lab under conditions mimicking those in LZ. The production feedthrough and connection was machined, assembled, and installed at Sanford Underground Research Facility this spring. In this talk I present the overall aspects of this component of the LZ experiment and the process of assuring its quality relating to the unique aspects required of it.

James Watson
University of California, Berkeley

Date submitted: 10 Jan 2020 Electronic form version 1.4