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Status of the LZ Cathode High Voltage Research and Design Project JAMES WATSON, Univ of California - Berkeley, LUX-ZEPLIN COLLABORATION — LUX-ZEPLIN (LZ) is a 7-ton dual phase xenon time projection chamber (TPC) which will perform several rare event searches. While LZ is superficially similar to its predecessor, LUX, the immense size of LZ (1.456 meters drift length for LZ vs. 48.0 cm drift length in LUX) leads to many design challenges associated with the increased scale. The generation and maintenance of the drift field of 600.0 Volts / cm is one area that becomes particularly difficult at larger 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, the cathode high voltage cable feedthrough and cathode connection design are being tested at Lawrence Berkeley National Lab under conditions which will mimic those in LZ. In this talk I present the current status of the LZ Cathode High Voltage research and design project.

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