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## First results of high voltage breakdown studies with XeBrA

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As noble liquid time projection chambers grow in size, their high voltage requirements increase, and detailed, reproducible studies of breakdown and electroluminescence are needed to inform their design. The Xenon Breakdown Apparatus (XeBrA) is a 5-liter cryogenic apparatus designed to study high voltage behavior in noble liquids located at Lawrence Berkeley National Laboratory. This talk will present the motivation for XeBrA and its first results in liquid argon and liquid xenon. Since experimental evidence suggests a correlation between electric field breakdown and electrode area in liquid argon, XeBrA was designed to characterize this behavior in both liquid argon and liquid xenon and allow for a direct comparison between measurements in these two noble liquids. Electrodes may be tested up to 30 cm<sup>2</sup> in area, cathode-anode separation from 0 to 10 mm, and cathode voltages reaching -75 kV.

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